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Reality and Judgment
according to
St. Thomas

Other Works of Peter Hoenen, S.J.

De origine formae materialis. Romae, Apud Aedes Universitatis Gregoriana, 1932. ("Textus et Documenta," Series philosophica, 2)

Recherches de logique formelle. La structure du système des syllogismes et des sorites. La logique des notions "au moins" et "tout au plus." Romae, Apud Aedes Universitatis Gregoriana, 1947. ("Analecta Gregoriana," 32)

Philosophie der anorganische Natuur; ed. 3. Antwerpen, Nijmegen, Standaardboekhandel, 1947.

Filosofia della natura inorganica. Brescia, "La Scuola," 1949. (Versio italica operis praecedentis)

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Reality and Judgment

according to

St. Thomas

Hoenen, Petrus Hubertus Jacobus, 1880-
By PETER HOENEN, S.J.

Gregorian University

With an Appendix by CHARLES BOYER, S.J.



Translated by

HENRY F. TIBLIER, S.J.

Mag. Agg. Gregorian University

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Reality and Judgment according to St. Thomas is an authorized translation of *La théorie du jugement d'après St. Thomas d'Aquin* (Analecta Gregoriana, Vol. XXXIX, Series Facultatis Philosophicae—Sect. A, n. 3), published at Rome in 1946 by the Gregorian University Press, with an Appendix containing an article entitled, "The Meaning of a Text of St. Thomas: *De veritate*, Q. 1, a. 9," by Charles Boyer, S.J., of the Gregorian University. This article originally appeared in the *Gregorianum* (V, 424-43).

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A. William Crandell, S.J.
Provincial of the New Orleans Province

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Patrick Gillespie
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TRANSLATOR'S NOTE

CONFLICT is a common phenomenon in the world today. But no conflict has been more harmful to men of good will and to the preservation of traditional Western civilization and culture than the conflict between the "new" learning and the "old," between modern science and the traditional philosophy of the ages—*philosophia perennis*. At the base of traditional Western civilization lies the great synthesis of this philosophy made by St. Thomas Aquinas. Can modern science be integrated into this synthesis?

As a teacher of cosmology and of courses known as "Scientific Questions connected with Philosophy—in Mathematics, in Chemistry, and in Physics," for twelve years my energies have been engaged in finding a common ground for the great Scholastic tradition and all that is good in modern science. I have become convinced that the common ground is to be found in the true Aristotelian and Thomist concept of science as based on immediate and universal and necessary principles discovered by intellectual intuition in the real as given in concrete experience.

Many Scholastic philosophers make the mistake of thinking that no necessary universal principles can be discovered in the data of sense experience; hence they conclude that the immediate principles of science strictly so-called, especially philosophy, must be analytic judgments, the predicates of which are found by analysis of the concept of the subjects. If they were faithful to this idea in practice, science and philosophy would be reduced to a sterile analysis of ideas.

Kant saw that if the principles of science were strictly analytic, such judgments would not represent any advance in knowledge over the separate knowledge of the subject and predicate and science based upon such judgments as "A is A" or "AB contains A" would be sterile. Convinced of the possibility of a fertile science, he thought he found the solution to the problem in his so-called discovery of synthetic "a priori" judgments, which were necessary and universal and the true principles of science. As synthetic, these judgments represent an advance over the separate

knowledge of the subject and predicate, and hence are not analytical; but as necessary and universal, they cannot be the fruit of sense knowledge or experience and hence must be "a priori." He saved the rigor and fertility of science, but it was no more a science of the real. His science is something imposed upon reality and not the expression of discoveries in reality.

St. Thomas, following Aristotle, had held that the universal, necessary, immediate principles of science were in a very real sense both synthetic and "a posteriori," but unfortunately this teaching had been neglected among Schoolmen. Such judgments are the expression of universal and necessary truths about the real world, which the human intellect can discover in the real world of sense and intellectual experience. Science then for Thomas was both *rigorous* and *real*. Rigorous, because its judgments were universal and necessary; real, because they were judgments about the real world of existing things given in experience.

In 1946, Father Peter Hoenen, of the Gregorian University in Rome, published a work entitled *La théorie du jugement d'après St. Thomas d'Aquin*. It is this book which has been translated and is now being published under the title: *Reality and Judgment according to St. Thomas*. In it, Father Hoenen, following Father Charles Boyer, S.J., defends the view that St. Thomas and Aristotle held the position that the immediate necessary principles of all the sciences, philosophy included, are necessities discovered in "what is." For St. Thomas, the content of our knowledge has the immediacy of what is given in experience, both sense and intellectual experience; but no intellectual experience is possible unless the intellect is actually understanding an intelligible aspect of something here and now grasped by sense knowledge. For St. Thomas, the mind does not make the content of knowledge, but discovers that content in concrete experience. Hence valid human knowledge is an absolute, for basically it is an intuition of what is actually existing. It is possible to have an exact and unchanging (yet fertile) philosophy if we build upon this foundation. What is best in modern science and in Thomist philosophy is here in perfect accord.

The book deals with the justification of the human act of judging—the one act of the mind which is the *per se* or proper subject of truth and falsity. The judgment is true if it judges to be what is and not to be what is not; otherwise it is false. The judgment is the one act of the mind which formulates all scientific principles and conclusions. Hence the book could be profitable to philosophers and scientists whose profession is the discovery of truth. It is especially appropriate for students of the critical problem,

of epistemology, and of the philosophy of science, and for those who are doing research on the first principles of all the sciences.

H. F. TIBLIER, S.J.

Jesuit House of Studies
Spring Hill College

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INTRODUCTION

A NUMBER of years ago we published an historical study of certain theses concerning the first principles of science.¹ This study shows that Cajetan defended, against Antonius Andreas and other Sco-tists, the thesis that sense experience has a determinant role in the origin, not only of concepts, but even of our scientific first principles. We proved that, though this thesis gradually disappeared from scholastic circles, it is nevertheless the doctrine taught by Aristotle and St. Thomas. A summary of St. Thomas's doctrine may be found in *De veritate*, q. 10, a. 6, *sed contra*:

All our knowledge in its origin consists in becoming aware of the first in-demonstrable principles. Our knowledge of these arises from sense experience, as is made clear at the end of the *Posterior Analytics*. Hence our scientific knowledge originates with sense experience. (Omnis nostra cognitio origi-naliter consistit in notitia primorum principiorum indemonstrabilium. Horum autem cognitio in nobis ex sensu oritur, ut patet in fine *Posteriorum*. Ergo scientia nostra a sensu oritur.)

In trying to relate this doctrine with St. Thomas's general theory of the judgment we found that general theory to be much richer than we had been led to suspect, and we came to believe that no other theory of the judgment is as true and as rich as that of the saintly doctor. The many passages, however, in which St. Thomas develops his theory of the judg-ment are scattered throughout his works, and often the details are to be found where St. Thomas is actually solving other problems. We consid-ered it, therefore, worth while to assemble these passages, for from them can be formulated an almost complete critical theory of human knowl-edge. We believe that St. Thomas's theory is the true one. Certainly it deserves profound study.

The conclusions of our investigations were published in the *Bijdragen* in a series of articles² of which this present book is a synthesis. In our investigations we found every indication that St. Thomas's theory, with the exception of one unimportant detail, underwent no change or evolu-

tion, but rather seems to have been present to him as a whole from the very beginning of his career as a writer. The elements of this doctrine of cognition have been the object of much written discussion, but surprisingly enough the authors of these works have in great part neglected St. Thomas's theory of the human judgment.

There is, however, one important exception to this almost universal neglect. This is the exact analysis which Charles Boyer, S.J., has given to the famous ninth article of the first of the *Quaestiones Disputatae De Veritate*.³ The conclusions of Boyer's penetrating analysis can be expressed as follows: according to St. Thomas, the judgment takes its rise from a reflection of the intellect on a preceding operation of the mind, namely, the simple apprehension. By means of this reflection we come to know the noetic nature of the act of apprehension and, in turn, the nature of the principle which produces this act of apprehension. In consequence of our knowledge of the nature of the act, we know its proportion to reality. From this results the mind's assent or judgment.

Boyer's deductions have, as we indicated in our article "De origine,"⁴ confirmed the conclusions to which our investigations led us. His study established two points. The first is that the operation on which the mind reflects during the process of forming a judgment is not a preceding *judgment*. Indeed, as is clear, this would not be possible for *every* judgment. The object of that reflection is rather the first operation of the mind, the simple apprehension. Such a reflection takes place before *every* judgment, and not merely before a philosophical and critical one. The second point established by Boyer comes to this, that an affirmative or a negative judgment is formed only after critical reflection on the content in one's consciousness during this preceding operation (the simple apprehension). This reflection reveals to us the noetic nature of our act of apprehension, and antecedes *every* human judgment. The first half of this general theory of the judgment can be called the *descriptive* or *phenomenological* noetic part, and the second half, the *critical* noetic part. Both parts are sketched by St. Thomas in the above-mentioned articles of the *De veritate*.⁵

These two conclusions contain only the most general outlines of St. Thomas's theory of the judgment, but they lead to a deduction of highest importance. As we have noted, they do not concern only those judgments which are the result of a philosophical and theoretical critique, but also the most ordinary direct judgments. For this theory demands at the origin of all judgments a reflection on a previous apprehension. This reflection contains a critique of the first operation and by reason of that critique the

mind becomes transparent to itself. Only then does the intellect say, "It is so," or "It is not so." Hence, according to St. Thomas the human mind even in its natural attitude, prior to any philosophizing, is already *critical*. Of course, in the texts which describe this process there is a philosophical theory of human cognition, but it is a theory concerning all cognition, even préphilosophical.

St. Thomas, however, did not limit himself to these general outlines of a theory of the judgment; he developed the theory and described it in much detail. We shall follow him in this development, first seeing the exposition of the descriptive or phenomenological noetic part, and afterwards, in the second part of our book, explaining the critical noetic part of the saintly doctor's theory.



PART ONE



*Phenomenological Theory
of Judgment*

CHAPTER I

Preliminaries of the Judgment

1. THE JUDGMENT AND THE SIMPLE APPREHENSION

IN OUR INTRODUCTION we recalled the analysis made by Boyer of the three texts of St. Thomas: *De veritate*, q. 1, a. 9; *In Metaphysicam*, VI, lect. 4; *Summa theologiae*, I, q. 16, a. 2. These three texts establish the doctrine that, as regards human cognition, there is a great difference between simple apprehension and judgment. The passage from the *Metaphysics* tells us that the human mind, by reason of its first operation, has a likeness of the thing which is understood (*habet similitudinem rei intellectae*), but it does not yet know that it has such a likeness; whereas in the second operation the mind not only has a likeness of the thing, but it also reflects upon the likeness, knowing and judging it (*non solum habet similitudinem rei, sed etiam supra ipsam similitudinem reflectitur, cognoscendo et diiudicando ipsam*).

So in the judgment—an operation which bears upon the simple apprehension—the human mind has acquired a new cognition of the content of the apprehension. It now knows that in the apprehension it possesses a likeness of the thing (*cognoscendo ipsam similitudinem*); it knows that it knows the thing, a fact which it did not know by the mere apprehension. It has acquired the new knowledge by reflection on the content of the apprehension (*supra ipsam similitudinem reflectitur*).

Likewise, the text of the *Summa* teaches us the difference between the two operations, for it tells us that in the mere apprehension the mind does not yet know the likeness (*similitudinem, conformitatem*) which it possesses, but that in the judgment the mind does know the likeness. The passage from the *De veritate* expresses this difference by stating that in the first operation truth is in the mind only as a material resultant of the action of the intellect (*sicut consequens actum intellectus*); whereas in the second operation it is in the mind also as known by the intellect (*sicut cognita per intellectum*), since in the second operation the intellect knows

the conformity between the act of apprehension and the thing (*cognoscit proportionem eius ad rem*).

This same doctrine is fully exposed in another passage which we shall analyze, namely, the third lesson of Book One of the commentary on *Perihermeneias*.¹ Naturally enough, this lesson gives a cross reference to *Metaphysics*, VI. The long commentary of this lesson deals with the well-known thesis of Aristotle that truth and falsity are found only in the judgment and the proposition. We shall return later to n. 4 of this commentary; let us now begin with n. 5.

Against the Aristotelian thesis St. Thomas advances the objections that the simple intellectual conception, which is an image of the object (*simplex conceptio intellectus, quae est similitudo rei*), itself contains truth and falsity; likewise, that the sense faculty has truth even though it is not capable of "composition and division"; that, moreover, in the intelligence of God there is truth, but without composition. Almost all the rest of the lesson is given over to the solution of these objections. This solution is nothing more than the theory which the above-mentioned passages develop. To explain the first two cases, which are the only ones which interest us here, St. Thomas says that it is only in the intellectual judgment that the human mind *knows* its truth, its conformity, its proportion.

Now let us consider especially n. 9 of this lesson. In the sense faculty and, when there is question of the intellect, in the simple apprehension, there exists conformity, and to that extent truth: a truth existing, however, merely as a material resultant of the action (*ut consequens actum*, as *De veritate*, q. 1, a. 9, says); but in the intellectual apprehension the truth is *not yet known*, and the sense faculty cannot *know* it:

[A sense faculty] cannot know the relationship of its conformity to the thing, it only apprehends the thing; the intellect can know such a relation of conformity, and hence only the intellect can know truth. Whence also the Philosopher says in *Metaphysics*, VI, that truth is only in the mind, as in that which knows truth. (Non enim potest [sensus] cognoscere habitudinem conformitatis suae ad rem, sed solam rem apprehendit; intellectus autem potest huiusmodi habitudinem conformitatis cognoscere; et ideo solus intellectus potest cognoscere veritatem. Unde et Philosophus dicit in VI *Metaphysicae* quod veritas est solum in mente, sicut scilicet in cognoscente veritatem.)

The sentence immediately following this passage can be taken as a definition of the judgment:

To know the aforesaid relation of conformity is nothing else than to judge it so to be or not to be in reality; but this is to compose and divide, and hence

the intellect knows truth only in composing and dividing by its judgment. (Cognoscere autem praedictam conformitatis habitudinem nihil aliud est quam iudicare ita esse in re vel non esse; quod est componere et dividere; et ideo intellectus non cognoscit veritatem nisi componendo vel dividendo per suum iudicium.)

To arrive at a judgment, therefore, we need a reflection on the apprehension; that is, we need a consideration of its content:² "It is so" (that is, "It is actually *such as* I represent it to myself"), or—for a negation—"It is not so" (*ita esse in re vel non esse*). The *so* is the content of the apprehension whose conformity the intelligence knows by reflection. We find then in this passage the same noetic explanation of the origin and meaning of the judgment that Boyer found in the other texts.

On the other hand, the text of *In Metaphysicam*, VI, lect. 4, n. 1236, seems to add a new element. For we read:

The intellect has in itself a likeness of the thing understood, inasmuch as it conceives the contents of simple apprehensions, but not on that account does it judge the likeness, but only when it joins and divides. (Intellectus autem habet apud se similitudinem rei intellectae, secundum quod rationes incomplexorum concipit; non tamen propter hoc ipsam similitudinem diiudicat, sed solum cum componit et dividit.)

Thus the mind in forming the concept of a "rational, mortal animal" has in itself a likeness (of man), but it does not know it as a likeness so long as it does not judge that man is such a thing. This takes place only in the second operation of the mind:

and hence there is truth and falsity *only in the second operation* of the intellect, *in which* the intellect *not only* has the *likeness* of the thing understood, but also *reflects upon it, knowing it, and judging it*. (et ideo in hac *sola secunda operatione* intellectus est veritas et falsitas, *secundum quam non solum* intellectus habet *similitudinem* rei intellectae, sed etiam super ipsam similitudinem *reflectitur, cognoscendo et diiudicando ipsam*.)

Certain words in this passage have been italicized to indicate the elements found above in the description of the meaning of the judgment: likeness, reflection, knowledge of the likeness as such in the judgment alone. But the last italicized word calls our attention to a new element: here St. Thomas demands not only knowledge of the conformity, but also a judgment; that is to say, an assent or a dissent. In the *In Perihermeneias*

the last two elements seem to be identical: "to know . . . is nothing else than to judge" (*cognoscere . . . nihil aliud est quam iudicare*). It seems to us, however, that St. Thomas wishes to distinguish these two elements. And thus this last-quoted phrase means only that every judgment is immediately preceded by a cognoscitive act (*cognoscere*). For in many other places³ the *assent* is described as the true act of judging, and as something which follows the cognoscitive act and is determined by it. Ordinarily, however, the assent will immediately and of necessity follow upon the cognoscitive act; this explains why they are not distinguished in the *In Perihermeneias*. But there are instances in which a very simple truth is recognized, during the examination of a problem, in such fashion that the mind centers its attention rather on the conclusions which flow from this simple truth. In this case the mind, though recognizing that truth (*cognoscere naturam actus*) nevertheless passes on immediately to the conclusions without explicitly affirming that simple truth. We believe that we have detected a number of such instances in the facts of elementary mathematics.⁴

We find, then, in the *In Perihermeneias* the same phenomenological description of the human judgment, in relation to the representation which it affirms or denies, which we have read in the three texts analyzed by Boyer. We find there very clearly and definitely a similarity and a difference between the two operations: the similarity consists in this, that the content of both operations is the same, the content of the representation; the difference is this, that during the apprehension the mind does not yet know that the content of the representation is conformed (or not) to reality; that is, to the *thing*. When it judges, it knows this conformity. This is a new knowledge, but the only new knowledge.

Likewise in the *In Perihermeneias* we discover the critical element of which this new knowledge is the fruit: it is the reflection after which the mind says: "Yes, it is so," or, "No, it is not so" (*ita esse in re vel non esse*). This discovery is the result of the reflection on the content of the representation (*super ipsam similitudinem reflectitur, cognoscendo et diiudicando ipsam*). The "nature of the act" (*natura actus*) of *De veritate*, q. 1, a. 9, is not found explicitly in the *In Perihermeneias*,⁵ but its equivalent is there; namely, the representative nature of the content of the apprehension. For the "nature" in question is not the metaphysical nature of the apprehensive act, but its noetic nature; for it is with respect to the act's conformity with the thing (*eius proportionem ad rem*) that this act's "nature" is to be known. This does not differ from "knowing the

aforesaid relation of conformity" (*cognoscere praedictam conformitatis habitudinem*) of the *De veritate*. However, this critical element will be studied only in the second part of this work. Meanwhile we must seek for more detailed exposition of the phenomenological part of the theory. St. Thomas will supply us with abundant data.

2. COMPOSITION IN THE REPRESENTATION

We have said in the preceding section that the content of the representation, and hence of the simple apprehension which precedes the judgment, does not differ from the content of the judgment. These two operations of the human mind do not differ except by reason of the new knowledge which characterizes the judgment and which is lacking in the simple apprehension; that is to say, the knowledge of the content's conformity with the thing (the *res*), hence, the knowledge of the content's objectivity. Let us intensify our study of this point.

Towards the end of the passage from the *In Perihermeneias* we find this description of the judgment: "to judge it so to be or not to be in reality" (*iudicare ita esse in re vel non esse*). These words are very important. Let us first take the simple word "ita"; the words "esse in re vel non esse"—which express affirmation and negation—will be the subject matter of the next chapter.

This "ita" (so) is a résumé of the content of a preceding apprehension. We have to separate the function of the first from that of the second operation of the human mind after this fashion: the function of the first operation is to give us, ready-made, the *whole content* and *structure* of the subsequent judgment; that is, all that will be affirmed or denied; the function of the judgment itself (after the reflection of which we have already spoken) is only to affirm or deny the reality of that content: "So it is (*is not*) in reality." If this is true, then in the first operation, the concepts of the subject and predicate of the future judgment cannot be present to our consciousness in a separated state as *two* concepts; they must already have a relationship, indeed the very same nexus, which will be affirmed or denied: "This is," or "This is not," in reality.

This nexus is ordinarily described by St. Thomas as the relation of a form (the predicate) to matter (the subject). Hence his theory (which we shall study later, in Chapter III) that "The subject is taken materially, the predicate is taken formally" (*subiectum tenetur materialiter, praedicatum tenetur formaliter*). This relation or nexus does not arise by rea-

son of, or in, the judgment; it is present in the human mind before the judgment. If the mind pronounces a judgment when reflecting on an apprehension, this apprehension is already complex. It has unity, but a unity of composition.

Against this thesis one can raise as a difficulty the customary terminology of St. Thomas whereby he describes the judgment as "joining" or "dividing" (*componens, dividens*). Likewise, one can call attention to the less frequent terminology which distinguishes the apprehension from the judgment as the "noncomplex" from the "complex" (*incomplexum, complexum*).

The difficulty is only an apparent one. In the human mind the act of judging is always preceded by a composition of the contents of the subject and the predicate; these contents are already united in the apprehension. An affirmative judgment is called "composition" (*compositio*) because it affirms the relation; a negative judgment is called "division" (*divisio*) because it separates what was united in the mind. Or rather (and this is the more accurate expression of St. Thomas's thought) an affirmative judgment is called "composition" because it *applies* the composite *apprehension to the thing*, to reality. A negative judgment is called "division" because it separates this composite apprehension from the thing. As we shall see, this explanation is described or understood in many texts, more as a simple experience of what takes place in our mind rather than as a formulated thesis. Nevertheless, it is a theoretical thesis of St. Thomas, a thesis which he upholds for a theoretical reason, a reason *demanding* prior composition in the content of an apprehension. The reason is this. Prior to the judgment, the concepts of the subject and predicate should be "compared" (rather, "correlated"⁶), at least in the human mind which passes from ignorance to knowledge, from imperfect to more perfect knowledge, from potency to act.⁷

It is for this reason that the mind judges by "putting together" or "dividing." Now the correlation that is prerequisite cannot take place if the contents of the subject and the predicate are in our thoughts only successively. They must both be together in the intelligence which apprehends, and this is impossible if they are not there joined in the unity of a single composite apprehension. Furthermore, this unity should be found already existing in the intelligible species (*species intelligibilis*) by reason of which, and in accordance with which, the apprehension is actualized. The same is true in the apprehension of the terms of a judgment as in the apprehension of the parts of a continuum—an analogy often re-

peated by St. Thomas. Let us now see some texts. This first one (from *Sum. theol.*, I, q. 85, a. 4) is very clear:

The intellect can understand many after the manner of one, not however after the manner of many. I say, after the manner of one or many, which means, by one or many intelligible species.⁸ (*Intellectus potest quidem multa intelligere per modum unius, non autem per modum multorum. Dico autem per modum unius vel multorum, per unam vel multas species intelligibiles.*)

The composition of concepts is found to be already in the mind, not only before the judgment but even, before the apprehension, in the impressed species. In a moment we shall see that it is found in the very data of sensibility.

In the answer to the fourth objection (*Sum. theol.*, I, q. 85, a. 4) we are told that this theory holds wherever a "comparison" (correlation) is to be made between two things which are to be known as correlates or as dispartes (*sub ratione comparationis vel differentiae*) and which, therefore, are known through the one form of the whole (*cognoscuntur per unam formam totius*, as the response to the third difficulty tells us). In the next article of the *Summa* the first objection endeavors to exclude the mode of judging by "joining" and "dividing." Its starting point is the impossibility of knowing many things at once. The solution refers us to the doctrine of the preceding article which admits only one species for the correlation. Hence the unity of subject and predicate is already realized in the intelligible species.

The same theory is expounded elsewhere. We read, for example, in *Contra gentiles*, I, 55:

[Our intellect] understands the whole continuum at once, not part after part; and in a similar way it understands the proposition, not first the subject and afterwards the predicate, because by reason of *one species of the whole* it knows all the parts. (*simul enim [intellectus noster] intelligit totum continuum, non partem post partem; et similiter simul intelligit propositionem, non prius subiectum et postea praedicatum; quia secundum unam totius speciem omnes partes cognoscit.*)

We have italicized certain words to emphasize that the composition must already be found in the species which precedes the apprehension. A passage from *Summa theologica*, I, q. 58, a. 2, is no less clear:

And so our intellect understands together the subject and predicate in so far as they are parts of one proposition, and understands two related things

in so far as they go to make one correlation . . . whatever things, therefore, can be known by one intelligible species, are known as one intelligible thing and hence are known together. (Et sic etiam intellectus noster simul intelligit subiectum et praedicatum prout sunt partes unius propositionis et duo comparata secundum quod conveniunt in una comparatione . . . quaecumque igitur per unam speciem intelligibilem cognosci possunt, cognoscuntur ut unum intelligibile et ideo simul cognoscuntur.)

This same thesis is explained in *De veritate*, q. 8, a. 14, and its metaphysical foundation established in detail: the species is there considered as a form of the passive (possible) intellect. We are referred to a passage of *Metaphysics*, VI, which is commented on in Lesson 4—analyzed in part in the preceding section. The commentary on this passage gives an even richer exposition of our problem. The problem is stated thus (*In Metaphysicam*, VI, lect. 4, n. 1227):

There can be some doubt about how the intellect understands things which are joined and divided; namely, whether it understands them together or separately. (potest esse dubium quomodo ista quae componuntur et dividuntur, intellectus intelligat: utrum scilicet simul aut separatim.)

There is question of the prior conception of the terms of a judgment ("those things which are joined and divided"). To begin with, the word "together" (*simul*) is explained (n. 1228). It does not signify the "togetherness" of the two terms in space or time, but the complex unity of the multiple:

Those things which are joined or divided . . . are not understood by the intellect together in the same sense that certain things are said to be together because they follow immediately on one another; but rather in the sense that certain things are said to be together because they become a unit. (intellectus ea quae componuntur et dividuntur . . . non intelligit simul, secundum quod aliqua dicuntur esse simul, ut consequenter se habent; sed secundum quod aliqua dicuntur esse simul in eo quod fit aliquid unum.)

From this datum is deduced the same solution as that in the texts we have just seen. But in this passage there are certain expressions to which we wish to call attention. If (n. 1228) the intellect forms two concepts, "man" and "animal," in so far as they are two things (*ut sunt duo quaedam*), then it understands them consequent upon two simple conceptions (*consequenter duabus conceptionibus simplicibus*). But if it forms a judgment from these concepts, we have something different:

When from these [two concepts, the intellect] forms a composition or *division*, it understands both as one, inasmuch as out of them a unit is made. (cum autem ex eis format compositionem vel *divisionem*, intelligit ambo ut unum, in quantum scilicet ex eis aliquod unum fit.)

It should be noted that even in the negative judgment (division) the two terms form a unity, as the words we have italicized say. Division signifies precisely the separation of two terms (or rather, as we have said, the separation of the complex term from reality); their union in the intelligence, therefore, must have preceded their separation by the negative judgment. Such is the sense of the words, "It understands both as one," which is to say that prior to the affirmation or negation which constitutes the judgment, the intellect possesses a complex unity in its thought or representation. This doctrine is repeated towards the end of n. 1229, both for the affirmation and the negation.⁹

The negative judgment is called division precisely because it separates what the mind had previously united after the manner of a problem; or rather, because in the negative judgment the mind separates this complex from the thing. We have here one of the radical imperfections of the human mind, and one of the reasons why the affirmative judgment has priority over the negative (*In Periherm.*, I, lect. 8, n. 3):

Also¹⁰ from a consideration of the intellect the affirmative enunciation, which signifies a composition of the intellect, is prior to the negative, which signifies a division of the same; for division is naturally posterior to composition, since there can be no division except of composites.¹¹ (Ex parte etiam intellectus affirmativa enuntiatio, quae significat compositionem intellectus, est prior negativa, quae significat divisionem eiusdem: divisio enim naturaliter posterior est compositione, nam non est divisio nisi compositorum.)

This text demands that a composition in the intellect precede even the negative judgment, but evidently not a composition which would be an affirmation, for that would imply the absurdity that every negative judgment was preceded by an affirmation of the same content; every *true* negation would be preceded by a mistake. Rather, what is anterior both to affirmation and negation is the composition of the terms of the future judgment, after the manner of a problem. Here again is another truth which the passage furnishes us, namely, that St. Thomas uses the term *compositio* in two senses: for the composition which is found already in the representation (apprehension), and also for the affirmation. We need

not wonder at the second sense, for the affirmation confirms the pre-existing composition and declares it conformed, applicable, to reality.

This second sense of the term "composition" is explained, together with the theory which puts the composition in the preceding apprehension, in the third lesson of the first book of the *In Perihermeneias*, part of whose important doctrine we have already studied. There, under n. 4, we read that in the intellect which apprehends there are likenesses of things (*similitudines rerum*), and that, as with every likeness, these too can be described and considered either as they are in themselves (*secundum se*) or according to the aspects of the things of which they are likenesses (*secundum rationes rerum quarum sunt similitudines*). St. Thomas continues:

If we consider those things which concern the intellect itself, there is always composition where there is truth and falsity.¹² Composition is never found in the intellect except by the fact that the intellect puts one simple concept in relation to another.¹³ But if there is reference to the thing, sometimes it is called composition and sometimes division. Composition, indeed, when the intellect puts one concept in relation to another, as it were apprehending the connection or identity of the things of which we have conceptions; division, however, when it so puts one concept in relation to the other in the sense that it apprehends that the things are diverse. (Si consideremus ea quae sunt circa intellectum secundum se, semper est compositio, ubi est veritas et falsitas; quae [compositio] nunquam invenitur in intellectu, nisi per hoc quod intellectus comparat unum simplicem conceptum alteri. Sed si referatur ad rem, quandoque dicitur compositio quandoque dicitur divisio. Compositio quidem, quando intellectus comparat unum conceptum alteri, quasi apprehendens conjunctionem aut identitatem rerum, quarum sunt conceptiones; divisio autem, quando sic comparat unum conceptum alteri, ut apprehendat res esse diversas.)

The difficulty against negative judgments is this: if "division" breaks the composite concept into simple concepts, how can a negative judgment be either true or false? For simple concepts are neither true nor false. The answer tells us that when we are about to judge there *always* exists in the intellect some composition of the two concepts which we are correlating. But when we subsequently ask ourselves if reality corresponds to our representation (*si referatur ad rem*), there is a difference: we have "composition" only if we say "This is," and we have "division" if we say "This is not." The above quotation demands that prior to the judgment there be composition in the apprehension; but for affirmative judgments it also gives another meaning to the term *compositio*. In both the first and the second operations of the human mind there exists the same nexus between

subject and predicate, but in the apprehension the nexus is merely represented or thought; whereas in the judgment it is affirmed or denied of the thing.

This is the reason why the term *compositio*, when applied to the affirmative judgment, is often further qualified. Thus, in *De veritate*, q. 14, a. 1, we are told: "Another operation of the intellect is that by which it joins and divides, by affirming and denying" (*alia operatio intellectus est, secundum quam componit et dividit, affirmando et negando*). What is in the mind prior to the judgment is called "problems" or again "contradictories" (*problemata; partes contradictionis*). The judgment itself is the assent to one of the two contradictories.¹⁴

The term *compositio*, which, when opposed to the term *divisio*, signifies the affirmative judgment, has then in reality a double sense. To reserve it without possible doubt to the affirmative judgment, St. Thomas adds a further determination, as, *affirmando*. The same is true of the term *complexum* (opposite of *incomplexum*). Ordinarily, *complexum* signifies the judgment and *incomplexum* the apprehension. Still, the apprehension itself is often composite and already contains the nexus between the subject and the predicate of the future judgment. This is why even the apprehension is sometimes called "complex." Thus, in the *In Posteriora Analytica*, I, lect. 2, n. 3:

It has been shown in *Metaphysics*, VII, that composites are not defined. There is no definition of a *white man* and still less of any enunciation. (*ostensum est autem in VII Metaphysicae quod complexa non definiuntur. Hominis enim albi non est aliqua definitio et multo minus enunciationis alicius.*)

To distinguish the complexity of the judgment from that of the composite apprehension, the former is qualified by the words "through affirmation or negation" (*per affirmationem vel negationem*). In the *In Metaphysicam*, VI, lect. 4, n. 1223, this is done primarily for words (*voces*), and subsequently (n. 1224) for the intellectual concepts (*conceptiones intellectus*):

Those [conceptions] which are simple do not have truth or falsity, but only those which are complex by reason of affirmation or negation. (*Quae enim sunt simplices non habent veritatem neque falsitatem, sed solum illae quae sunt complexae per affirmationem et negationem.*)

Note again how negation is also a cause of complexity, for it too correlates the representation with reality.

John of St. Thomas¹⁵ divides the second operation of the human mind (composition and division) into two classes by distinguishing two kinds of acts, the one which apprehends or forms the proposition and the other which judges. The first is called apprehensive enunciation and the second is called judgment (*Unum qui apprehendit seu format propositionem, alterum qui iudicat; et primus vocatur enuntiatio apprehensiva, secundus iudicium*). In both acts there is a nexus between the subject and predicate but what characterizes the second act is that in the judgment we say, "So it is," or "So it is not" (*per iudicium dico: Ita est vel non est*). This theory differs only verbally from the description we found in St. Thomas himself; all the more so since the characteristics proper to the judgment, truth and falsity—Aristotle and St. Thomas even *define* the judgment by these two words—are found, according to John of St. Thomas, only in the judgment and not in the "apprehensive enunciation." He does not, then, depart from the doctrine we have discovered above. However, we must class his "apprehensive enunciation" among the apprehensions, fruits of the first operation of the human mind. With even greater reason must we do this in the case of St. Thomas himself, for in his doctrine the nexus between the subject and predicate of the future judgment (which nexus is only *represented* in the apprehension) should be found already in the antecedents of the apprehension; namely, in the sense data. The following section is devoted to this important element in the theory of St. Thomas.

3. COMPOSITION IN THE PHANTASM

A. *The Judgment and Sense Data.* The composition, that is, the nexus between the subject and the predicate of the future judgment, is always and necessarily found to be already present in the phantasm from which the abstractive intellect draws the complex intelligible species. This doctrine is always supposed by St. Thomas, even in innumerable passages which do not say it expressly. But there are also passages which are quite explicit on the point.

Let us begin with certain texts which, although analyzing a very special case (that of prophecy), nevertheless take occasion to expound the general theory of all human judgment. For example, in a question concerning the manner of prophetic cognition (*Sum. theol.*, II-II, q. 173, a. 2) we read:

Two things have to be considered in connection with knowledge possessed by the human mind; namely, the acceptance or representation of things, and

the judgment on the things represented. (Circa cognitionem humanae mentis duo oportet considerare; scilicet acceptionem sive repraesentationem rerum, et iudicium de rebus praesentatis.)

We notice at once with what precision the caesura described above is indicated: first comes the apprehension, then the judgment on what is presented by that apprehension. In the pause, or caesura, occurs the important transition between the intellectual *representation* (apprehension) and the *judgment* on the content of that representation (*iudicium de rebus praesentatis*). After this summary introduction, St. Thomas describes with special care the acceptance of things. Then he discusses the possible influence of the gifts of prophecy on both the acceptance of things and the judgment on what is received.

We might note that the apprehension is called *acceptio*; elsewhere its content is often called *accepta*. This is the element of knowledge which today is called *the given*, or *data*. St. Thomas's term *accepta* seems to us more exact, for without doubt we are conscious of receiving something before we realize that it is given to us.¹⁶ This *acceptio* is later called *repraesentatio* and its content *praesentata*,¹⁷ a term which describes very exactly the character of what is purely apprehended (whether simple or complex) but not yet affirmed.

There follows a description of that *presentation*:

Now things are represented to the human mind under the form of species; and according to the order of nature, they must be represented first to the senses, second to the imagination, and third to the passive intellect, which is changed by the species derived from the phantasms as a result of the enlightening action of the active intellect. (Repraesentantur autem menti humanae res aliquae secundum aliquas species: et secundum naturae ordinem, primo oportet quod species praesentantur sensui; secundo, imaginationi, tertio intellectui possibili, qui immutatur a speciebus phantasmatum secundum illustrationem intellectus agentis.)

We learn that in the natural course of things, that is, outside of the case of prophecy, these data (*accepta*) of the apprehension reach the intelligence originally from the external senses, through the intermediary of the imagination. We are here given a description of how the simple perception of a fact takes place: we see Socrates who is walking. It is clear that the perception of this fact necessarily demands that, prior to the intellectual apprehension, the nexus between the subject and the predicate already exist in the phantasm and in the perception of the external

senses. But the same thing is true of more important judgments, namely, scientific ones. St. Thomas continues:

Now in the imagination there are the forms of sensible things not only as received from the senses, but also transformed in various ways, either on account of some bodily transformation (as in the case of people who are asleep or out of their senses), or through the co-ordination of the phantasms, at the command of reason, for the purpose of understanding something. For just as the various arrangements of the letters of the alphabet convey various ideas to the understanding, so the various co-ordinations of the phantasms produce various intelligible species of the intellect. (In imaginatione autem non solum sunt formae rerum sensibilium secundum quod accipiuntur a sensu, sed transmutantur diversimode: vel propter aliquam transmutationem corporalem, sicut accidit in dormientibus et furiosis; vel etiam secundum imperium rationis disponuntur phantasmata in ordine ad id quod est intelligendum. Sicut enim ex diversa ordinatione litterarum accipiuntur diversi intellectus, ita etiam secundum diversam dispositionem phantasmatum resultant in intellectu diversae species intelligibiles.)

Here there is no further question of immediate observation; else the phantasm would be ordered "as received from the senses." Rather there is here supposed a change in the phantasm, independently of the external sense. This change can take place in spite of us, as, for example, in sleep or in insanity. Such an indeliberate change ordinarily leads to error and is not considered here. But a change can also be brought about "at the command of reason" and with a view to a scientific judgment (*in ordine ad id quod est intelligendum*). Actually, St. Thomas has mathematics in mind.

In a moment we shall return to this question, but first let us note two important points. The first is this, that from a phantasm so composed, and *only in this way*, there results in the human mind a complex intellectual apprehension. St. Thomas knows no combination of two intellectual apprehensions independent of a complex phantasm. Or rather, according to St. Thomas, such a combination is naturally impossible to man. Even an angel can cause such a combination in the human mind only by combining the imagined forms (*componendo formas imaginatas*; see *De ver.*, q. 11, a. 3; *De malo*, q. 16, a. 12, ad 7).¹⁸ In fact, even for scientific judgments, we find composition not only prior to the judgment, but even prior to the intellectual apprehension; namely, in the phantasm itself.

The second point is this: the change in the phantasm is described as "co-ordination of the phantasms," and a little later "the various co-ordi-

nations of the phantasms" (*diversam dispositionem phantasmatum*) is compared to the "various arrangements of the letters of the alphabet." This structure (*dispositio*) is not a quality, it is a relation (*un rapport*), an order. In the following chapter we shall discuss at length this objective relationship. The word itself, *dispositio*, has become with St. Thomas (though this fact has not yet been widely noted) a technical term for the relationship between the subject and predicate of the future judgment. The judgment itself is nothing else but the affirmation or negation precisely of this relationship. The term *dispositio rei* is equivalent to the modern term *Sachverhalt*.¹⁹

It is this structure (*dispositio*) which must be found in the phantasm if we are to understand something (*in ordine ad id quod est intelligendum*). Hence, in the phantasm preceding an apprehension, we already find realized the proper unity which the subject and predicate of the future judgment must have when they exist in the pure apprehension. This is a necessity, even for the phantasm preceding a scientific judgment.

Such is the description which St. Thomas gives of the *acceptio*, or representation which must precede every judgment. Of the judgment itself, the second operation of the human mind, he gives but a brief description:

As to the judgment formed by the human mind, it depends on the critical power of the intellect. (*Iudicium autem humanae mentis fit secundum vim intellectualis luminis.*)

Between the two operations we find a caesura, the phase in which we must look for the reflective act (*reditus* or *reflectio*) which we spoke of in our first section. During the caesura the "power of the intellectual light" is active; it is active on the data (*accepta*), and it judges them. It is only by this "power" that the truth, the conformity with reality, is known. This is the reason why we like to translate the expression *secundum vim intellectualis luminis* by "in accordance with the critical power of the human mind." This entire process is demanded for every judgment, not only for the scientific judgment but also for the judgment which affirms or denies a simple observation (*secundum quod accipiuntur a sensibus*). In the noetic-critical part of our book we shall see with what insistence St. Thomas demands the intervention of this critical power for the possibility of a simple judgment such as "Socrates is walking." He does not neglect the contribution of the senses, but neither does the intelligence lose any of its rights.²⁰

B. *The First Principles*. As we have just seen, according to St. Thomas the connection between the subject and predicate which is affirmed or denied by a judgment is found already represented in the intellective apprehension which precedes the judgment, and—even earlier—in the sense data. This is true for all judgments, even scientific ones. Among these latter, there is one group of the highest importance, the scientific first principles (*prima principia*). St. Thomas's thesis is universal, hence applicable even to these principles. This can be seen in numerous passages analyzed in our work cited previously, "De origine principiorum scientiae." We shall not repeat them here. But the application of the universal doctrine to these principles can be found also in certain passages which draw a parallel both as to origin and as to content, between the first principles and the truths of faith.

The treatise *In Boethium De Trinitate* contains an article (q. 3, a. 1) on the question whether faith is necessary for the human race. The fourth objection tells us:

Whenever there is acceptance of knowledge without criticism (judgment), there is an easy road to error; but we have nothing in ourselves by means of which we can judge about the things we receive from faith, since natural judgment does not extend to such things. (Ubi cumque est acceptio aliquorum cognitorum sine iudicio, est via facilis ad errorem; sed non habemus aliquid in nobis per quod possimus iudicare de his quae per fidem accipimus, cum naturale iudicium ad huiusmodi non sese extendat . . .)

The term *iudicium* without doubt here means "critical examination"; another term, *assensus*, is shortly afterwards given to the other kind of judgment, the one which follows after, because justified by, the judgment which is the "critical examination." For the rest, we again find the caesura between the data (*accepta*) and the judgment on them; the caesura furnishes the occasion for making the critical examination. The difficulty comes precisely from this, that articles of faith are indeed data, but in their case there are no means of making the critical examination. That is the reason why "there is an easy road to error." The answer to this objection may well contain new teaching on the theory of the judgment.

The solution to the difficulty is simple: even in the case of supernatural faith we have a *lumen*, or "light," which allows a justified judgment on the data; indeed this light is more unfailing than natural light (*lumen naturale*). This light is the light of faith, a sort of seal imprinted on the mind, as it were, by the Prime Truth, God; and this light suffices for

making a judgment (*lumen fidei, quod est quasi sigillatio quaedam primae veritatis in mente . . . hoc lumen sufficit ad iudicandum*). This light is the habit of faith (*habitus fidei*).

For our own thesis, however, it is the general framework of the solution which is more important. We read:

Whenever assent is given to the data in any way, there must be something which inclines us to the assent, such as the natural light of the intellect when we assent to first, self-evident, principles, and the truth of the first principles themselves when we assent to demonstrated conclusions, and certain verisimilitudes when we assent to those things which we opine. (*Quandocunque acceptis aliquomodo assentitur, oportet esse aliquid quod inclinat ad assensum, sicut lumen naturaliter inditum in hoc quod assentitur primis principiis per se notis, et ipsorum principiorum veritas in hoc quod assentitur conclusionibus scitis, et aliquae verisimilitudines in hoc quod assentimus his quae opinamur.*)

The subsequent doctrine distinguishes four modes of assent: that of the intellect strictly so-called (that is, *intellectus principiorum*); that of science strictly so-called (*conclusionibus scitis*); that of an opinion more or less uncertain; while a fourth—the assent of faith—is added later.

With whatever case we deal, we first have data (*accepta*). Next—and before the assent or judgment—comes the activity of the “light” which allows us to pass judgment, whether with certitude or with mere opinion, on the data. The case of supernatural faith is the same:

Hence even in faith whereby we believe God, not only is there a reception of things to which we give assent, but there is something which inclines to that assent, and this is the light which is the habit of faith. (*unde et in fide qua in Deum credimus, non solum est acceptio rerum quibus assentimus, sed aliquid quod inclinat ad assensum, et hoc est lumen quod est habitus fidei.*)

In the first two cases, the assent of the human mind is forced by an evidence justifying the judgment (*cogit ad assensum et est sufficiens ad iudicandum de iis quibus assentitur*). But this is not true for the probabilities which allow only of an opinion; hence by this means there can be had no perfect judgment on the things to which such an assent is given (*nec per hoc potest haberi perfectum iudicium de his quibus assentitur*), whereas in the first two cases a perfect critique (*iudicium perfectum*) had indeed been guaranteed. In divine faith (*in fide qua in Deum credimus*) there are also data, namely, the content of the articles of faith proposed by a divinely authorized legate; there is also a light, the infused light of faith in the soul, a light affecting the will rather than the intellect ([*non*]

mouet per viam intellectus, sed magis per viam voluntatis). This light, however, furnishes a perfect guarantee for the assent of faith.

There then follows the important analogy between the knowledge of faith and the knowledge of first principles. We italicize the more important characteristics:

And thus it is clear that faith in a twofold manner is from God; namely, on the one hand by reason of the interior light which induces to assent, and on the other, by reason of those things which are *proposed from without* taking their origin from divine revelation. *These latter are related to the knowledge of faith, as what is received through the senses to the knowledge of the principles*, because both are *determinants* (of the content) of knowledge. Hence, just as the knowledge of first principles is received from sense, and yet the *light by reason of which the principles are known is innate, so faith comes from hearing*, and yet the *habit of faith is infused*.²¹ (Et sic patet quod fides ex duabus partibus est a Deo, scilicet ex parte interioris luminis quod inducit ad assensum, et ex parte eorum quae *exterius proponuntur*, quae ex divina revelatione initium sumpserunt; et haec se habent ad cognitionem fidei, sicut *accepta per sensum ad cognitionem principiorum*, quia utrisque fit aliqua cognitionis determinatio. Unde sicut cognitio principiorum accipitur a sensu, et tamen *lumen quo principia cognoscuntur est innatum, ita fides est ex auditu et tamen habitus fidei est infusus.*)

In both instances there are data not yet affirmed, and these come *from without*; there is also an interior light (*innate or infused* as the case may be) justifying the consent or assent. In knowledge by faith the data are the truths of faith coming from without by a man authorized originally by God (*quae ex revelatione divina initium sumpserunt*). In the case of knowledge of first principles, the data are the content of the first principles. This content also comes to the intellect "from without"; that is, from the senses (*accepta per sensum*).

The analogy implies, then, that for first principles the data are already composite; for certainly in the case of faith the data are composite. We shall return to this point in a moment. In both cases, too, there is an internal principle to which is due the justification of the intellect's assent to the data which have come from without. This principle is always an internal "light"; for faith it is the infused habit of faith; for the first principles it is an innate power, a *lumen inditum naturaliter*. Concerning this latter we have learned above that "the judgment formed by the human mind depends on the critical power of the intellect."

There is then a great difference between the function of the apprehension and the function of the judgment. The former receives from the

senses the data, whether composite or noncomposite; the judgment affirms or denies these data.

We italicized above the expression "determinants of knowledge" (*cognitionis determinatio*), for the phrase is frequent in St. Thomas and has become for him practically a technical term to indicate the *content* of an act of knowledge, a matter whose form—the formal object—is the motive which leads to assent. St. Thomas uses this expression as much for the content of the apprehension as for the content of the judgment; in both cases the term *determinatio* means simply "the actual content."

This same doctrine is succinctly formulated in the prologue of the *In Sententias*, a. 5. There too we are dealing with principles (specifically, the principles of theology) which are data originating in revelation (*per revelationem accepta*). These principles presuppose the gift of faith and a determination from without. And now once again we find reference to the similar case of scientific first principles:

Besides the infused light, it is necessary that the habit of faith be specified to *determined objects of belief by the teaching of a preacher . . .* just as the understanding of naturally known principles is *determined* (in content) *by what is received from the senses*. (*praeter lumen infusum, oportet quod habitus fidei distinguatur ad determinata credibilia ex doctrina praedicantis . . . sicut etiam intellectus principiorum naturaliter inditorum determinatur per sensibilia accepta.*)

The word *determinatur*, therefore, here means "receives its content." Thus once more the analogy between the truths of faith and the content of the first principles is accentuated: the content of both comes from without (the one from the teaching of the preacher: *ex doctrina praedicantis*; the other, by what is received from the senses: *per sensibilia accepta*), and the content is in each case called a determination. The motives, the formal objects, which lead to the affirmation of these data are different: for the truths of faith the motive is the First Truth (*veritas prima*), the authority of God revealing; for the first principles the motive is the intelligibility of the data, which is due to the intellectual light.²²

St. Thomas makes use of this analogy to explain his theory of faith; conversely, we can use it to understand better his theory of the knowledge of first principles. We have, then, in both cases data from without, and after that we have the judgment which affirms or denies the content of these data. Our present problem is to determine whether these data are composite or not.

At the very beginning of the answer to a difficulty in his treatise *In Boethium De Trinitate*, we were told that the "innate light" (that is, the *lumen naturaliter inditum*, according to which the judgment is formed) moved us (*inclinat*) to the affirmation of these data where there is question of first principles (*in hoc quod assentitur principiis per se notis*). The assent, "So it is," presupposes that the data are composite, although not composite by reason of affirmation. This doctrine is accentuated by the comparison of such an assent with the act of faith. The data whose affirmation constitutes a first principle are compared to the truths of faith, whose contents are determined by an authorized preacher. But these latter are essentially composite; hence the former—the data affirmed by the first principles—are likewise composite. Furthermore, the origin of these data is attributed to the senses (*accepta per sensum; a sensu*): the senses are the external agent, just as is the preacher who proposes composite truths. Hence, composition is found even in the sense data. St. Thomas, therefore, not only admits composite sense data at the origin of judgments of fact, but also, and with no less insistence, at the origin of the first principles, the judgments of the "intellect" in the strict sense of the word.

In unusually strong words St. Thomas upholds the thesis that the data which are proposed as truths to be believed with divine faith are composite. The thesis itself seems to be very evident. The preacher's doctrine proposes to the faithful the truths of faith, not as separated ideas, but as composites; in the mind of the preacher they are even composite through affirmation (*complexa per affirmationem*); in the mind of the hearer they are not thus composite (*per affirmationem*) until he gives his assent. However, the hearer receives these truths as descriptions of objective structures (*Sachverhalte*). Before he gives his assent these data are only such descriptions; but they *are composites*.

A difficulty against this otherwise evident thesis is the following: the proper object of faith is the First Truth (*veritas prima*), and this is not composite; yet our assent always has to do with composites. In *De veritate*, q. 14, a. 8, ad 12, St. Thomas admits that faith, just like science and opinion, has to do with a composite in so far as it has reference to us (*fides sit de complexo, quantum ad quod in nobis est*). He also defends (*ibid.*, ad 5) the position that faith is an assent to a preceding complex:

Our intellect receives divine truth according to our own manner, by composition; and thus since *it assents to a ready-made composite as to something true* it tends towards the First Truth as to its object. (eam [veritatem divinam] intellectus noster accipit suo modo per viam compositionis; et sic per hoc quod

compositioni factae tanquam verae assentit in veritatem primam tendit ut in obiectum.)

This much is evident: there is composition prior to the affirmation or judgment. Moreover, it is evident that the *verbal* description of an objective structure that is not yet affirmed uses the same verbal formula as the proposition which expresses the judgment affirming the reality of the structure.

This thesis seems very clear; hence we can understand why St. Thomas uses strong terms to reject the opposite thesis (*In Sent.*, III, D. 24, q. 1, a. 1, sol. 2):

Those who said that the object of faith is not complex, were ignorant of their own language. For the expression "I believe in the Incarnation" cannot be understood by forming the concept of the Incarnation; for thus anyone who understood what is meant by the word would believe the Incarnation. Hence the meaning is, "I believe the Incarnation to be or to have been." (illi qui dixerunt quod fidei obiectum est incomplexum propriam vocem ignoraverunt. Quod enim dicitur, "credo Incarnationem," non potest intelligi formando conceptum Incarnationis; quia sic quilibet qui intelligit quid significetur per nomen, crederet Incarnationem. Unde sensus est: "Credo Incarnationem esse vel fuisse.")

The objective structure which is here affirmed is, "The Incarnation is (or has been)."

Would not St. Thomas use terms just as strong against a philosopher who would affirm that the data which are at the origin of the first principles are simple, or *incomplex*, concepts?²³

If we are not mistaken St. Thomas's opinion can be expressed as follows: if someone makes a judgment, gives his assent, whether it be to a truth of faith or to a first principle, he can be asked, "Why do you affirm this?" In this question emphasis can be placed on the word "this," that is, the content of the affirmation, and then the answer will be, "Because I have learned it, either through an authorized teacher or through the senses." But if emphasis is placed on the word "affirm," then the answer will be either, "Because of the authority of God revealing" or, "Because I understand it, because the datum is intelligible." Evidently the two motives, that is, the two answers to the question "why," are not disconnected even though distinct, for the authority of God must be recognized as bound up with the content in question, and in the other case intelligibility is discovered in the complex data of the phantasm. Later on we

shall make another distinction to take care of diverse types of first principles.

We must conclude, then, that even in the case of scientific principles (which principles are judgments of the "intelligence" in the strictly technical sense of the word), the sense data which lie at the origin of these judgments must be composite data, with the complexity existing at least as early as the phantasm. The synthesis of concepts is not the task of the act of judging; such synthesis precedes the judgment; rather, the act of judging is the recognition of this complex as objective: "So it is in reality."

C. *The Permanent Necessity of the Phantasm.* The judgments which are the first principles of the sciences depend, as we have seen, for their origin (and for the understanding of their content) on complex data in the phantasm. The same thing, evidently, must be said for the first deduction of a conclusion derived from these principles. But with St. Thomas this dependence is even more far-reaching than that, this dependence is something permanent. The human mind must always reconstruct a fitting phantasm whenever it renews, or repeats, its understanding of some conclusion previously attained and expressed by propositions; so too for the truly *intelligent* application of the first principles.

This Thomist theory has its origin in Aristotle's doctrine. In Chapters 7 and 8 of Book III of *On the Soul*, the Stagirite establishes two theses which St. Thomas adopts. The first thesis says that phantasms are for the intellect what the sensible is for the senses; the second thesis, a consequence of the first, says that the soul cannot think without phantasms. We here cite two formulations of the first thesis (as given in the Latin translation used by St. Thomas):

For the intellective soul, phantasms are as the sensibles. (*intellectivae autem animae phantasmata ut sensibilia sunt.*—431a 14.)

The intellect understands the forms in a phantasm. (*species quidem igitur intellectivum in phantasmate intelligit.*—431b 2.)

The second thesis is expressed as follows:

For this reason the soul never understands without phantasms. (*propter quod nunquam sine phantasmate intelligit anima.*—431a 16.)

When we speculate, we must at the same time contemplate some phantasm. (*cum speculatur necesse est simul phantasma aliquod speculari.*—432a 9.)

St. Thomas's observations on these theses may be read in Lessons 12 and 13 of his *In De Anima*, III.²⁴ This last reference is a polemic against Avicenna:

It is clear from this that Avicenna's assertion is false; namely, that the intellect does not need the sense after it has acquired science. For it is manifest that after one has acquired the habit of science, it is still necessary to make use of the phantasm in order to speculate; for this reason the use of already acquired science is impeded by injury to the sense organs. (Patet autem ex hoc falsum esse quod Avicenna ponit, quod intellectus non indiget sensu postquam acquisivit scientiam. Manifestum est enim quod, postquam aliquis acquisivit habitum scientiae, necesse est ad hoc quod speculetur, quod utatur phantasmate; et propter hoc per laesionem organi impeditur usus scientiae iam acquisitae.)

These passages prove that St. Thomas makes Aristotle's theses his own. He wishes to justify them, and appeals here as elsewhere to experience, both internal and external. The word *speculate* has reference to what we have above described as renewing, or repeating, the act of understanding conclusions previously attained and expressed by propositions. In developing this theory in his own systematic works, St. Thomas frequently refers us to these passages of Aristotle while also making appeal to experience.

Question 84, article 7, of the first part of the *Summa theologiae* is devoted to the problem, whether the intellect without making use of phantasms can actually understand by means of an intelligible species which it has previously acquired. (*Utrum intellectus possit actu intelligere per species intelligibiles, quas penes se habet, non convertendo se ad phantasmata.*) The answer, with cross reference to Aristotle's text, is negative:

In the present state of life in which the soul is united to a passible body, it is impossible for our intellect to understand anything actually, except by turning to the phantasms. (Impossibile est intellectum nostrum secundum praesentis vitae statum quo passibili corpori coniungitur aliquid intelligere in actu, nisi convertendo se ad phantasmata.)

We are given two reasons. The first repeats the doctrine that a disturbance of the sensible part, arising from an organic lesion, disturbs the intelligence not only of one who wishes to learn but also of one who wishes to use knowledge already acquired:

Wherefore it is clear that for the intellect to understand actually, not only when it acquires fresh knowledge, but also when it applies knowledge already

acquired, there is need for the act of the imagination and other powers. (unde manifestum est quod ad hoc quod intellectus actu intelligat, non solum accipiendo scientiam de novo, sed etiam utendo scientia iam acquisita, requiritur actus imaginationis et ceterarum virtutum.)

The second reason is taken from our experience, both internal and external:

Anyone can experience this of himself, that when he tries to understand something, he forms certain phantasms to serve him by way of examples, in which as it were he examines what he is desirous of understanding. For this reason it is that, when we wish to help someone to understand something, we lay examples before him, from which he forms phantasms for the purpose of understanding. (hoc quilibet in se ipso experiri potest, quod quando aliquis conatur aliquid intelligere, format sibi aliqua phantasmata per modum exemplorum, in quibus quasi inspicit quod intelligere studet. Et inde est etiam quod quando alium volumus facere aliquid intelligere, proponimus ei exempla ex quibus sibi phantasmata formare possit ad intelligendum.)

There now follows the theoretical foundation of the thesis. The words last cited refer to the teaching of a science, a function expressed by the technical term *doctrina*, whereas the function of the student is *disciplina*. Hence, in *Contra gentiles*, II, 73, we read:

[The possible intellect] understands immaterial things but it sees them in something material. An indication of this is that for universal *doctrines* particular examples are proposed, in which what is said may be seen. ([Intellectus possibilis] intelligit quidem immaterialia, sed inspicit ea in aliquo materiali. Cuius signum est quod in *doctrinis* universalibus exempla particularia ponuntur, in quibus id quod dicitur inspicitur.)

Next comes an exposition of the two cases referred to above, that of first learning a science, and that of later using the results previously acquired. In regard to the first case the phantasm is called an *instrument* and a *foundation* for the intelligible species. The master proposes to his pupils certain theses (there is question especially of scientific theses, of scientific objective structures); to make them understand the meaning of the content, and to elicit their assent, he uses examples in which the doctrine of the thesis may be intuited (*in quibus id quod dicitur inspicitur*). Once again we have, as regards content, the parallel with the preacher who teaches the truths of faith. The pupil's first task is to understand the content of the proposition; then comes the assent of the mind, whether by the light of faith, or by the natural light of the intellect. This assent is

preceded by an already complex content of the phantasm, and it is this complex content which is understood by a consideration of the phantasm.²⁵

Of course a person may think also with the aid of verbal images, but St. Thomas is not speaking of these, and so we do not treat of them here. We shall, however, make a few observations. If the mind thinks *only* with the aid of such verbal phantasms, then evidently it does not actually *understand* the truth which it formulates verbally. True, there is the memory that one has once understood the truth (alas! even this is not always the case) and there is simultaneously the memory of having understood the connection between the propositions leading up to the truth. But with regard to this last point something more can be said. When only verbal phantasms are used, there is an actual understanding (*inspiciat*) of the *pure logical form* of propositions, and consequently of their formal logical connections. One has a right to deduce conclusions from them, and in practice it is necessary that the human mind proceed in that manner. Still there is always need of a phantasm, whether verbal or symbolic.

This doctrine implies another possibility, that of the passage from a natural, classical logic to a logistics which, in its own manner, uses artificial symbols. But in every case, in all these operations, the human mind has need of phantasms, natural or artificial. In order to perform its operations reason must examine the phantasms (*inspicere in phantasmata*).²⁶

To return to the main doctrine of this present section, note that a false conclusion might be drawn from Aristotle's analogy that the phantasms are to the intelligence what the sensibles are to the senses. One might be tempted to interpret the doctrine as follows: the sensibles are the object of sense knowledge, hence the phantasms are the object of intellectual knowledge. But this is not true; rather, *in the phantasm* the intelligence knows the *thing*, the objective structure represented by the phantasm. This we learn from *Summa theologiae*, III, q. 11, a. 2, ad 1:

This likeness which the Philosopher asserts is not with regard to everything. For it is manifest that the end of the power of seeing is to know colors; but the end of the intellective power is not to know phantasms, but to know intelligible species, which it apprehends from and in phantasms, according to the state of the present life. Therefore there is a likeness in respect of what both powers regard, but not in respect of that in which the condition of both powers is terminated. (Similitudo illa quam philosophus ponit, non attenditur quantum ad omnia. Manifestum est enim quod finis potentiae visivae est cognoscere colores; finis autem potentiae intellectivae non est cognoscere phantasmata, sed cognoscere species intelligibiles, quas apprehendit a phantasma-

tibus et in phantasmatibus, secundum statum praesentis vitae. Est igitur similitudo quantum ad hoc quod aspicit utraque potentia, non autem ad hoc in quod utriusque potentiae conditio terminatur.)

The "intelligible species" of this text are not the species whereby we know, but either the *verbum* or the thing represented by the species, or (and this is beyond doubt the better interpretation) both. For one who knows his St. Thomas no doubt is possible. Moreover, this is explicitly stated in two articles which give expression to this same restriction of the Aristotelian adage (*De ver.*, q. 2, a. 6; and q. 10, a. 9). Both passages add the explanation that by means of a reflection, a return upon the preceding operation, even the phantasm may be known intellectually. But *direct* knowledge sees, in the phantasm, the thing represented. This *representation*, we are told, is the function *par excellence* of sensibility (*Q. D. De An.* a. 5):

The sense powers are necessary to the soul for its understanding, not accidentally as an exciting cause, as Plato said, nor as a disposing cause only, as Avicenna said, but as *representing* (imaging) to the intellective soul its proper object, as the Philosopher says (*On the Soul*, III): "to the intellective soul the phantasms are as the sensibles to the sense." (Potentiae sensitivae sunt necessariae animae ad intelligendum, non per accidens tanquam excitantes, ut Plato posuit, neque disponentes tantum, sicut posuit Avicenna, sed ut *repraesentantes* animae intellectivae proprium obiectum ut dicit philosophus (III *De anima*): "Intellectivae animae phantasmata sunt sicut sensibilia sensui.")

We have already met this same term *repraesentatio* in *Summa theologiae*, II-II, q. 173, a. 2. It is in the phantasm, whether of a thing or of an objective structure, that the intellect sees (*aspicit, inspicit*) what it is endeavoring to understand. Then begins the second phase of the process, the phase that leads to a judgment.

Besides the expressions *aspicit* and *inspicit*, we have met the word *speculari* as expressive of the same function of the intelligence; and in another text we read the word *considerare*. This text (*Sum. theol.*, II-II, q. 175, a. 4) is a summary of all we have said:

Now the human intellect does not turn to sensible objects except by means of the phantasms through which it receives from the senses the intelligible species; and it is in *considering these phantasms* that the intellect *judges* of and co-ordinates sensible objects. (Intellectus humanus non convertitur ad sensibilia nisi mediantibus phantasmatibus, per quae species intelligibiles a sensibus accipit, et in quibus *considerans* de sensibilibus iudicat et ea disponit.)

The last phrase refers undoubtedly to the arrangement which the human mind makes in the imagination, as we learned from q. 173, a. 2.

4. IMPORT OF THE CONCLUSIONS REACHED IN THIS CHAPTER

In this phenomenological part of our study we have as the first result of our researches into St. Thomas's theory of the judgment, the doctrine that the judgment consists in an affirmation or negation of data: "So it is in reality," "So it is not in reality." This judgment is *always* the fruit of a reflection on the data, a reflection whose function it is to find the motive justifying the judgment. For every judgment of the natural order the reflection is made with the aid of the "light" of the human mind. Further study of this reflection belongs to the second half of our book, the noetic critique. However, we have already seen that, in judging, the nature of the apprehensive act (*natura actus*) is made manifest by the intellectual power directed upon the data.

What then is the *advance in knowledge* made by a judgment over and above the knowledge characteristic of the simple apprehension? As regards the *content* or matter of the apprehension, there is no advance; not even the synthesis of concepts is new, for this union of concepts is already had in the apprehension, prior to the judgment and even prior to the reflection. This content remains, then, unchanged. Nevertheless, there is an advance or increase of knowledge in the judgment; for by its reflection the human mind *knows* the truth, the likeness, the proportion of the apprehension to the thing (*super ipsam similitudinem reflectitur; cognoscit proportionem; habitudinem conformitatis suae ad rem*). This was not known by the mind prior to the reflection nor by the mere apprehension of the data. Only after this reflection does the mind judge, "So it is in reality."

Does this mean that prior to reflection the mind, in its bare apprehension, has no knowledge of the thing? Does this mean that the mind only knows its idea? Not at all; by the mere apprehension the mind has a knowledge of the thing, it knows the content and meaning of the data. Indeed, the apprehension *is* essentially this knowledge—the judgment adds nothing to this meaning. This content (for the affirmative judgment) does represent the thing and is conformed to the thing. However, by its mere apprehension the mind does not yet know this conformity, *it does not yet know that it knows*. It gains this last knowledge only through the reflection which precedes the judgment, "So it is in reality." By this re-

flection the mind recognizes the reality of a quiddity represented in the preceding apprehension. The new knowledge implied by the judgment is, therefore, the knowledge of the being, or objectivity, of the quiddity contained in the data. In the following chapter we shall study more fully the doctrine of St. Thomas on this point.

We have, then, data upon which the mind will pass judgment after reflection. These data, as we have seen at length, are already composite prior to the judgment, they represent certain objective structures, and are not just isolated concepts; indeed, this composition is already existent as early as the phantasm. One might ask whether this conclusion is of any importance for the further research into, and for the understanding and appreciation of, the theory of St. Thomas. We answer that it has a decisive bearing, and this for many reasons:

1. Recall the caesura between the data and the judgment. The data are in the mind at first only as representations, then follows the judgment, "So it is—so it is not—in reality." This "is" (*esse*) has reference to reality. The following chapter will be devoted to the study of this *esse* according to the formula, "The first operation of the mind is directed to the quiddity; the second, to existence" (*prima operatio respicit quidditatem, secunda respicit esse*). Between these two operations is the caesura, during which there is reflection on the representation. Recall certain formulas:

judgment on *what has been received* (*De ver.*, q. 12, a. 3, ad 1: *iudicium de receptis*);

acceptance of what is known and a judgment on *what has been received* (*ibid.*, a. 7: *acceptio cognitorum et iudicium de receptis*);

acceptance or representation and a judgment on *what is apprehended* (*Sum. theol.*, II-II, q. 173, a. 2: *acceptiorem sive repraesentationem et iudicium de apprehensis*);

phantasms . . . *considering them* we judge about sensible things (*ibid.*, q. 175, a. 4: *phantasmatis . . . in quibus considerans de sensibilibus iudicat*);

by means of the intelligible light a judgment on *what is apprehended* is perfected (*De malo*, q. 16, a. 12: *secundum lumen intelligibile perficitur iudicium de apprehensis*);

assent to what has been received—something which inclines us to assent—(light) which forces an assent—sufficient for judging *about those things* to which we assent (*In Boeth. De Trin.*, q. 3, a. 1, ad 4: *acceptis assentitur;—aliquid quod inclinatur ad assensum;—(lumen) quod cogit ad assensum;—sufficiens ad iudicandum de illis quibus assentitur*);

the understanding of principles naturally arising in us is *determined by sensibles which have been received* (*In Sent.*, Prol., a. 5: *intellectus principiorum naturaliter inditorum determinatur per sensibilia accepta*).

Hence the judgment is most certainly the result of a reflection upon the apprehension and the data. What is this process in which the "intellectual light" and its "power" play such an important role? This light renders possible a critique and an intuition. This is indicated by such terms as *inspicere*, *aspicere*, *considerare*, *speculari*, *in phantasmate*, which we have often met; so too the term *examinare*, which we shall shortly discuss. Moreover, the word *iudicium* can have the same meaning.

The first texts examined by Boyer indicate that the result of the reflection is that we know the nature of the apprehensive act, and from this knowledge there results knowledge of the conformity of the content of the apprehension with the thing, knowledge of its truth. This is what justifies the assent and the judgment therefore says, "So it is in reality." Now for the understanding and appreciation of the theory of St. Thomas it is of decisive importance to know whether the things apprehended in the very first operation are still isolated (in which case the nexus would exist only by and in the judgment), or whether the things apprehended are already connected and their nexus merely affirmed by the judgment. For in the first supposition the nexus could not be examined during the reflection on the data, for the nexus would not yet exist. The nexus would be a consequence of the reflection and not part of the object of the reflection. In the second supposition, however, the nexus is an element of the data and, therefore, it is also an object of the intellectual activity which precedes the judgment. It may well be that the nexus is the principal object of this activity, that the "nature of the act" is manifested principally by the nature of the nexus, and that the intelligibility of the data which evokes the assent resides precisely in this nexus. Here we mention only the possibility of this supposition; later we shall see that this is actually the position of St. Thomas.

Now if this is so, then the result of our study, which found the presence of the nexus in the data of the apprehension, is indeed of greatest importance, for it tells us what takes place in the important caesura which separates the data from the judgment and in which the judgment on the data finds its critical justification. If the *understanding* of the nexus is decisive in this process, then we shall understand nothing of St. Thomas's theory unless we suppose that this nexus exists prior to the reflection. This will give us the key to the understanding and appreciation of St. Thomas's critical theory of human knowledge. If his theory is true (and that is our conviction) then the reconstruction of that theory will be possible only if grounded on the hypothesis that reflection on the data discovers this

nexus in them. Any theory which makes the opposite supposition its starting-point is on the wrong track from the very beginning.

2. In line with this same (noetic) trend of ideas, let us make another passing observation. If the data of the apprehension already contain the nexus between the concepts of the subject and predicate of the future judgment, then a verbal description of the objective structure (*dispositio rei*) necessarily has the form of a problematical proposition which is neither assented to nor denied; just as before an act of faith the proposed articles are already composites, but not by way of affirmation or negation, for this would make of them judgments.

Evidently the promptitude to give assent can exist and be justified *before* the content of the data is given; this is the case of the believer who is convinced of the authority of the preacher. In this case, the justification of the subsequent assent already precedes the determination. A similar inversion can be found also in natural cognition; indeed in scientific methods it is quite frequent. For example, a mathematician very legitimately is convinced of the validity of the *future* result of his calculations in which the sensible data, drawn from the symbols employed, play an important role. Here the determination comes after the critique. This is met with even in immediate judgments which can be called principles.²⁷

The data then can be formulated as a proposition prior to their confirmation by a judgment. Reflection on the data does not differ from reflection on such a proposition. Such a reflection is then what is called a *critique*. And in fact the consideration of the data—a consideration such as is made during the caesura preceding every judgment, according to St. Thomas—has as its purpose the choice between the alternatives, “So it is—so it is not—in reality.” And the choice is made through motives justifying the judgment under the influence of the intellectual power. This is the very essence of a critique in the proper sense of the word. And St. Thomas demands this critique for every judgment, even—as we shall later see—for the judgments of everyday experience, like “Socrates is walking.” Preceding every human judgment there is a passive reception (*recipere*), but there is also an active consideration, critical of the data. This we read in *De veritate*, q. 1, a. 10:

Truth and falsity exist mainly in the judgment of the soul; the soul indeed inasmuch as it judges of things, is not acted upon by things, but rather after a fashion acts. (Veritas et falsitas praecipue in iudicio animae existunt, anima vero in quantum de rebus iudicat, non patitur a rebus, sed magis quodammodo agit.)

Since it presupposes this critique in every judgment, St. Thomas's system is a natural critical realism; its particularities and its consequences will form the object of the second half of our book.

3. Every judgment presupposes a caesura separating it from, and uniting it to, the data which it judges. Not only is this true of immediate judgments, but also of mediate ones; that is, of the conclusions of a demonstration; for these, too, St. Thomas demands a far-reaching critique. For he says (*De ver.*, q. 12, a. 3, ad 2):

The judgment does not depend only on the *reception* of the species, but on this also, that the things concerning which a judgment is made are examined in relation to some principle of cognition, just as we judge of conclusions by resolving them back to principles. (*Iudicium non dependet tantum a receptione speciei sed ex hoc quod ea de quibus iudicatur, examinentur ad aliquod principium cognitionis, sicut de conclusionibus iudicamus, eas in principia resolvendo.*)

This text is concerned with a principle made use of in the objection, "Judgment follows upon reception; and so where the reception is more perfect, the judgment will be more perfect" (*iudicium receptionem sequitur; ergo ubi est potior receptio, est etiam perfectius iudicium*). Now reception always comes from the phantasm. But note the use of the word "only" in the answer; for the judgment does not depend *only* on the reception, it depends also on the critical examination (*examinentur*) which follows the reception. In the case cited—the examination of a conclusion—the examination is the resolution into principles. For the definitive confirmation of a conclusion, that is, for arriving at definitive "rest" in relation to an objective structure, St. Thomas seems always to demand this "resolving into first principles"; this is the task of "Analytics."²⁸ Finally, this resolution or analysis should be traced back, in a certain sense, even to the sense data; for we are told in the answer just cited:

Since the first beginning of our knowledge is sense, it is necessary that everything of which we judge be traced in some way to sense knowledge. (*Quia primum principium nostrae cognitionis est sensus, oportet ad sensum quodammodo resolvere omnia de quibus iudicamus.*)

These words are of great importance. It is necessary, in some fashion, to *resolve* to sense everything of which we judge. "Everything"; hence not only physical judgments and, especially, mathematical judgments, which St. Thomas so often has in mind. Other judgments, too, metaphysical and

noetic, demand a resolution to sense (*resolutio ad sensum*), but only "after a fashion" (*quodammodo*). We must study this "mode," this manner or measure of the resolution; and in this study we shall learn much from the caesura and its reflection. But it is important to know where we are to go for our study; even for metaphysical and epistemological principles we must have recourse *quodammodo* to sense data.

4. All that we have said would be of the highest importance even if the nexus of the data were found only in the intelligence, prior to the judgment, but not found in the sense data. But actually this nexus, according to St. Thomas, is found already in the phantasm, and that necessarily. This leads to another conclusion decisive both for the understanding and the appreciation of the theory of the saintly doctor.

Whatever is found in the data of the sensible representation comes from sense experience, even in the case where the phantasm in which the intelligence "reads" (*inspiciendo*) a truth, owes its origin to a formation or disposition (*formatio, dispositio*) of phantasms; that is, to a combination of phantasms. The texts we have seen often speak of this combination. Now among Aristotelian philosophers it is generally admitted that the terms of a judgment, that is, the human concepts, come—each of them separately—from the senses. But that the ability to affirm the nexus presupposes an experience of the contents as already connected—this doctrine is a thesis which, since the renaissance of Thomism, has been mentioned by only a small number of philosophers and utilized by none. As we established in our study "De origine," it was precisely this thesis which Cajetan defended against the Scotists and which, later on, seems to have been universally admitted by the Thomists. But then it disappeared without leaving any trace. This thesis, however, flows straight from the general theory of the judgment according to St. Thomas—so far as we have examined that theory—for the sensible data, given by experience, must already contain the nexus if they are to lead up to the judgment, "So it is—so it is not—in reality" (*ita est in re, ita non est in re*).

In our above-mentioned article an analysis of a great number of texts brought us to the conclusion that Cajetan's thesis had been that of St. Thomas. It will be sufficient here to refer to St. Thomas's commentary on the last chapter of the *Posterior Analytics*. The disappearance of the thesis from philosophy in general is without doubt due to a prejudice of the eighteenth century which held that no knowledge of the necessity and universality of truths could be the result of experience.²⁹

We see then that Cajetan's thesis is a Thomist one. When there is

question of *understanding a necessary relation*, and not merely question of the knowledge of a *de facto* relation, the mind is not content—before and during its act of judging—merely to register and express after its own manner the data of the senses. The mind does more; and this additional element must be sought for in the *abstraction* of the sense data and especially in the reflection which occurs during the trenchant caesura which, St. Thomas teaches, occurs between the apprehension of data and the judgment. Further research should teach us what happens, according to our author, during this caesura; but it is of highest importance to know where to make our search.

But before doing this, we must examine more thoroughly the theory of St. Thomas with regard to the meaning of the term “is” (*esse*) in the judgment, “So it is.” Further, we must examine in greater detail the structure of the nexus in the judgment. This is the task of our next three chapters.

CHAPTER II

Judgment and Existence

IN THE FIRST CHAPTER we saw that the judgment is the result of a reflection on a preceding operation, a simple apprehension. The apprehension furnishes data which already contain the whole content, the entire determination of the future judgment, including the connection between the subject and the predicate. Indeed, composition is found even in the sense data, prior to the simple apprehension. Sense data are precisely *accepta a sensu* (or, *per sensum*). But despite their composition these data remain a pure representation until there is an affirmation (or negation) saying, "So it is—so it is not—in reality." The word "so" (*ita*) signifies precisely the content. To it the affirmative judgment adds "is" (*esse*). The negative judgment denies the "is" and is therefore called "division." These judgments are the natural products of the intelligence and of its reflection on the data.

To the composition already found in the apprehension the affirmative judgment adds another kind, namely, an assertion of the reality of the composition found in the representation. Or, in other words, to the thing signified by the subject of a proposition the affirmative judgment adds an "application" of the composite representation.

Further, we saw that St. Thomas makes a clear-cut caesura, or pause, between the mind's first operation (an apprehension of data) and the judgment. This latter is a purely intellectual operation and is made only after reflection. The caesura likewise separates the content of the data and the reality (*esse*) which the judgment attributes to the data. The distinction between the mind's two operations is emphasized by St. Thomas in a series of texts which we shall now examine and which will not only confirm the conclusions of our first chapter but also cast new light on them.

1. "THE MIND'S FIRST OPERATION IS CONCERNED WITH QUIDDITY,
THE SECOND IS CONCERNED WITH EXISTENCE"

This dictum (*Prima operatio respicit quidditatem, secunda respicit esse*) is but another description of the caesura and of the great functional dif-

ference between the apprehension and the judgment: the apprehension is concerned with the quiddity of the thing, even—indeed, especially—with the composite quiddity, whereas the judgment is concerned with the existence (*esse*), the act of the essence (*actus essentiae*).

Our first text is an extract from *In Boethium De Trinitate*, q. 5, a. 3:

There is a twofold operation of the intellect: one which is called the understanding of indivisibles, by means of which we come to know what each thing is; the other is that by means of which the intellect composes or divides, by forming a negative or affirmative enunciation. And these two operations correspond to a real duality. The first operation is concerned with the nature of the thing, in accordance with which a certain understood thing holds some grade among beings, whether it be a complete thing like a whole, or whether it be incomplete like a part or an accident. The second operation is concerned with the existence of the thing, the existence which results from the aggregation of the principles in the case of composite things or which accompanies the simple nature of the thing in the case of noncomposite substances. (Duplex est operatio intellectus. Una quae dicitur intelligentia indivisibilium, qua cognoscitur de unaquaque re quid est; alia vero est, qua componit et dividit, scilicet enuntiationem negativam vel affirmativam formando. Et hae quidem duae operationes duobus quae sunt in rebus respondent. Prima quidem operatio respicit ipsam naturam rei, secundum quam aliqua res intellecta aliquem gradum in entibus obtinet, sive sit res completa ut totum aliquod, sive incompleta ut pars vel accidens. Secunda operatio respicit ipsum esse rei quod quidem resultat ex aggregatione principiorum rei in compositis, vel ipsam simplicem naturam rei concomitatur in substantiis simplicibus.)

The particular application which is next made by this article is not important for our study. However, if one desires still further clarification on the "existence" in question, he can profitably consult the remainder of the article. He will likewise find there an explanation of the kind of abstraction that might be involved in a judgment.¹ In the first operation of the mind abstraction does not lead to error: we can consider the color of a man without considering his substance, and vice versa. But in the judgment, the second operation of the mind, this separation is no longer legitimate: we cannot say, without error, that a man has no color. Here the abstraction, that is, the separation, signifies a separation in reality. This is so precisely because the judgment is concerned with existence (*iudicium respicit esse*).²

The first intellectual operation is concerned only with the *nature* (*quiddity*, or *essence*). "Nature," however, includes composite natures or substances and even includes substance-accident composites; for example,

white man. The judgment, on the contrary, is concerned with (*respondet ad, respicit*) the existence (*esse*) of this nature or quiddity. And this existence is here described, with the characteristics ordinarily attributable to the *esse* which is the resultant of component principles or, in the case of simple substances, is an accompaniment (*concomitatur*) of the nature—the *esse*; in short, which would be the actuality of the quiddity.

This *esse* can be that of an accident. Hence the negation of this *esse*, in a negative judgment, does not necessarily entail the negation of the existence of the subject (that is, the substance). For we read in the *In Perihermeneias*, I, lect. 9, n. 4:

We are not to understand that the expression, “which is” and “which is not,” refers only to the existence or nonexistence of the subject, but they mean that the thing signified by the predicate is in, or is not in, the thing signified by the subject. (Non est autem intelligendum quod hoc quod dixit, *Quod est et quod non est*, sit referendum ad solam existentiam vel non existentiam subiecti, sed ad hoc quod res significata per praedicatum insit vel non insit rei significatae per subiectum.)

This is the reason why a negative judgment concerning an accidental *esse* does not deny the existence of the subject; whereas in an affirmative judgment, the affirmation of an accidental *esse* evidently implies the affirmation of the existence of the subject. But even in this latter case what is directly intended is the affirmation of the nexus between the subject and predicate, the affirmation of an accidental *esse*. Thus in the *In Perihermeneias*, II, lect. 2, n. 2, we read:

When one says, *Socrates is white*, it is not the intention of the speaker to assert that Socrates exists, but to attribute whiteness to him, by means of this word *is*. (Cum dicitur, *Socrates est albus*, non est intentio loquentis ut asserat Socratem esse in rerum natura, sed ut attribuat ei albedinem, mediante hoc verbo, *est*.)

A twofold doctrine, therefore, is given us by St. Thomas’s formula, “The first operation of the mind is concerned with quiddity, the second operation is concerned with existence.” First, new emphasis is given to the separation between the two operations and to the difference of their functions. Secondly, we are taught that the mind passes, in judging, from the pure representation of the quiddity (which does not yet guarantee existence) to the knowledge and the affirmation of the existence (objectivity) of this quiddity.

That St. Thomas's position is a realistic one is universally admitted, but perhaps it is not so universally known that in his teaching, knowledge of objectivity is revealed to us only when we are ready to judge. Indeed, such knowledge is the cause of the judgment. St. Thomas's doctrine once again tells us what takes place during the caesura in which the mind directs its intellectual power on the data. Nothing quidditative is added to the data, nor does any new quidditative element manifest itself. The judgment merely asserts the *being* or *reality* of that which the intellect discovers in the data present to the mind. But it is precisely this discovery which is of the greatest importance. It occurs by means of a purely intellectual operation. But this is taking us into the noetic part of the doctrine!

Lastly, St. Thomas's formula teaches us a point which has not, perhaps, drawn sufficient attention—it attributes an existential component³ to every judgment. The copula of a proposition has primarily an existential meaning. We shall return to this point later; meanwhile, we must study certain texts which apply the Thomist formula, though sometimes with a nuance.

In the *In Sententias* (I, D. 38, q. 1, a. 3), St. Thomas uses the formula to solve the question, Whether God has knowledge of enunciabiles (*Utrum scientia Dei sit enuntiabilium*). A difficulty against an affirmative answer is developed from the fact that the enunciabiles of the human mind are composite and are known only by way of composition, whereas God and His knowledge are simple. The answer makes use of our formula:

God not only knows things themselves, but also enunciabiles and composites; and yet by a simple cognition, in His own way. This becomes clearer thus: since in reality there are two things, the quiddity of the thing and the existence of the thing, there corresponds to these two a twofold operation of the intellect. One of these is called by philosophers formation, by means of which it apprehends the quiddities of things. This is also called the understanding of indivisibles. Another operation attains the existence of the thing, by composing an affirmation; because even the existence of a thing composed of matter and form, from which the intellect acquires its knowledge, consists in a certain composition of form with matter or of accident with subject. Similarly even in God Himself we can consider His nature and His existence, and just as His nature is the cause and exemplar of every nature, so also His existence is the cause and exemplar of every existence. Whence just as by knowing His essence, He knows every thing, so by knowing His existence, He knows the existence of every thing; and thus He knows all enunciabiles, by means of which existence is signified; not, however, by a diverse operation nor by a composition, but simply; because His existence is not distinct from His essence, nor is it consequent upon composition. And just as by one cognition He knows

both good and bad, so by one cognition He knows affirmations and negations. (Deus non solum cognoscit ipsas res, sed etiam enuntiabilia et complexa; tamen simplici cognitione per modum suum; quod sic patet. Cum in re duo sint, quidditas rei, et esse eius, his duobus respondet duplex operatio intellectus. Una quae dicitur a philosophis formatio, qua apprehendit quidditates rerum, quae etiam a Philosopho, in III *De anima*, dicitur indivisibilium intelligentia. Alia autem comprehendit esse rei, componendo affirmationem. Quia etiam esse rei ex materia et forma compositae, a qua cognitionem accipit, consistit in quadam compositione formae ad materiam, vel accidentis ad subiectum. Similiter etiam in ipso Deo est considerare naturam ipsius, et esse eius; et sicut natura sua est causa et exemplar omnis naturae, ita etiam esse suum est causa et exemplar omnis esse. Unde sicut cognoscendo essentiam suam, cognoscit omnem rem; ita cognoscendo esse suum, cognoscit esse cuiuslibet rei; et sic cognoscit omnia enuntiabilia, quibus esse significatur; non tamen diversa operatione nec compositione, sed simpliciter; quia esse suum non est aliud ab essentia, nec est compositum consequens; et sicut per idem cognoscit bonum et malum, ita per idem cognoscit affirmationes et negationes.)

Here we have the same terms as before or similar ones: first there is "quiddity," "nature," "essence," and then there is "existence"; and corresponding to the former is the first operation of the mind, corresponding to the latter is the judgment. Still more clearly we see that the first operation "apprehends the quiddity" (*apprehendit*) and the second "attains the existence of the thing" (*comprehendit esse rei*), the formula thus indicating neatly what is attained by each operation. In this text, too, the "quiddity" includes not only substance but also a subject compounded of substance and accident.

St. Thomas could have given a much more simple solution to his problem by mentioning the fact that the infinite essence of God contains whatever is knowable by man and that, consequently, God knows all human enunciabiles. But our author seems to attach great importance to the distinction between quiddity and existence and between the corresponding operations of the human mind; whence his complicated answer. Further on (Chap. X, Sect. 5) we shall see that St. Thomas makes still another distinction with respect to God's knowledge.

The commentaries on Boethius and on the *Sentences* are youthful works of St. Thomas; but in the *Summa theologiae* itself, the same doctrine (though without the long explanations) is used for solving the same problem. We read, for example (I, q. 14, a. 14, obj. 2):

In God there is no likeness of enunciabiles, since He is altogether simple. Therefore, God does not know enunciabiles. (In Deo nulla est similitudo

enuntiabilem, cum sit omnino simplex. Ergo Deus non cognoscit enuntiablem.)

The answer is succinct, but it contains the same complications:

Enunciatory composition signifies some existence of a thing; and thus God by His existence, which is His essence, is the similitude of all those things which are signified by enunciation. (*Compositio enuntiabilis significat aliquod esse rei. Et sic Deus, per suum esse, quod est eius essentia, est similitudo omnium eorum, quae per enuntiablem significantur.*)

Composite essences have their exemplar in the divine essence; but the composition proper to a proposition has its exemplar in the divine existence, for such composition "signifies existence."

This very typical expression "signifies the existence of the thing" recurs frequently, even in the later works of St. Thomas. In the *In Perihermeneias*, I, lect. 8, n. 3, we read:

In its objective foundation also, an affirmative enunciation which signifies *existence*, is prior to a negative which signifies *nonexistence*. (*Ex parte etiam rei affirmativa enuntiatio quae significat esse, prior est negativa quae significat non esse.*)

Ib., n. 21: Since to signify *existence* is proper to affirmation and to signify *nonexistence* is proper to negation. (*Cum significare esse sit proprium affirmationis, et significare non esse sit proprium negationis.*)

Ib., lect. 9, n. 2: An enunciation is either affirmative, by which something is said to be, or negative, which signifies that something is not. (*Enuntiatio vel est affirmativa, per quam scilicet enuntiatur aliquid esse, vel negativa per quam significatur aliquid non esse.*)

The words "in its objective foundation" found in the first text mean that the *esse* in question is the *esse* of a real thing. Correspondence to this *esse* is what gives the affirmative proposition and judgment priority over the negative.

There is yet a third application of the dictum used as title for this section. St. Thomas applies the dictum to illustrate the different senses of "true" and "truth." His doctrine on truth is the well-known Aristotelian thesis that truth in its proper sense is found only in the judgment. This thesis precedes the strict definition of truth, for it is the very starting-point for such a definition. Truth, in its proper sense, is found only in the judgment, hence only in the intellect and (for the human mind) only in the second operation of the intellect. This thesis merely expresses what we

directly experience in our own mind (hence its function as starting point for a definition of truth): we speak of truth in the strict sense not when we represent something to ourselves, but only when we affirm or deny a representation ("It is so" or "It is not so"). The other meanings of the word "truth" are only derived or analogous meanings. Since this thesis is well known, we can be satisfied with only a few comments and a few references.

The analogy in question is that which is found among things which are designated according to some priority and posteriority (*in illis quae secundum prius et posterius dicuntur—De ver.*, q. 1, a. 2). What is primarily (*per prius*) true is knowledge, especially (in human cognition) the judgment.⁴ This does not prevent truth from being, in the human mind, the effect of a cause; which cause, in its turn, is for that reason likewise called "true" but only in a derived sense.⁵ Just as in the classical example of this kind of analogy "health" is predicated primarily of a living being even though health can be the effect of a cause; for example, food, which in its turn is called "healthy" in a derived and secondary sense. Similarly, we predicate "truth" of the intellect and of the thing. Predicated of the thing it is called ontological truth, whereas the less happy expression "logical truth" has been chosen for the truth of the judgment. An apprehension and a definition are likewise called "true" in a merely derived sense, for truth really is in them, though not known as such (*ut in quadam re vera, non autem ut cognitum in cognoscente—Sum. theol.*, I, q. 16, a. 2). Or, truth is in them as a material resultant of the act (*sicut consequens actum—De ver.*, q. 1, a. 9).⁶ An arrangement of different truths according to their different meanings is given in *De veritate*, q. 1, a. 3.

These notions have a relationship to the dictum of which we are treating and of which we have seen two applications. This relationship is explained by St. Thomas in *In Sententias*, I, D. 19, q. 5, a. 1, where he asks the question whether truth is the essence of a thing (*utrum veritas sit essentia rei*). Arguments are first set forth (obj. 2) which seem to prove the total identity of the two concepts: a thing's essence and a thing's truth differ neither in reality nor in the mind (*essentia rei et veritas non differunt neque re neque ratione*). Then reasons are presented (obj. 5) which seem to establish that the two are entirely different. In solving the problem St. Thomas develops the thesis which we have just sketched. He says that truth in the proper sense of the word, formal truth, is one of those objects which have a foundation in things but which, formally, exist only in the mind (like universals, and time).⁷ But then arises the further question,

What is it in the thing that is the foundation of the truth which formally is only in the judgment of the mind? The answer is:

Since, however, in the thing there is its quiddity and its existence, truth is founded rather in the existence of the thing than in its quiddity, just as the name of *being* is imposed from existence. (Cum autem in re sit quidditas eius et suum esse, veritas fundatur in esse rei magis quam in quidditate, sicut et nomen entis ab esse imponitur.)

The foundation of truth, therefore, is not the essence, but rather (*magis*) the existence. The *magis* indicates that the quiddity or essence is not *directly* the foundation of formal truth which is found in the mind. The essence, however, is *indirectly* that foundation, inasmuch as it is "being" (*ens*); that is to say, the essence is what is related to existence. As a quiddity it is ontologically true, and because it is being (*ens*), it is the cause of the formal truth.

Not only existence but also quiddity (because quiddity—*dispositio rei*, *Sachverhalt*—is related to existence) is called the foundation and the cause of formal truth. Our addition of the word "cause" is justified by the causal proposition used in *In Metaphysicam*, IX, lect. 11, n. 1897:

You are not white because we truly think that you are white; but rather we think that you are white because you are white. Hence it is manifest that the disposition of the thing is the cause of truth in thought and in word. (Non enim ideo tu es albus quia nos vere existimamus te esse album; sed e converso ideo existimamus te album, quia tu es albus. Unde manifestum est quod dispositio rei est causa veritatis in opinione et oratione.)

We shall return to this passage and its context in Section 5, which is devoted to the "disposition of the thing" or "objective structure" as we shall frequently call it (*dispositio rei*, *Sachverhalt*). For the moment, let us observe that there is question of the simple experiencing of an internal fact, and also that the existence here is that of a nexus (it is "to be white" which is affirmed), and finally that the "cause" and "foundation" are equated with "the reason why" (introduced, in the text, by *quia*). Elsewhere (for example, in *De caritate*, a. 9, ad 1) we meet the term *ratio*:

If we consider the existence of the thing, which is the foundation of truth, as is said in *Metaphysics*, II, there is the same disposition of things in existence and in truth; consequently the more fully things are beings, the truer they are. (Si consideretur ipsum esse rei, quod est ratio veritatis, sicut dicitur in II Metaphysica eadem est dispositio rerum in esse et veritate; unde quae sunt magis entia sunt magis vera.)

The *ratio veritatis* is "the foundation of truth." Here, evidently, *ratio* is that to which truth is proportioned.⁸

Getting back to the citation from the *In Sententias*, we note that the last lines of the article describe the relation of essence to truth as follows:

Truth adds another note to essence; namely, a relation to the knowledge or demonstration of something. (*Veritas addit supra essentiam secundam rationem, scilicet, ordinem ad cognitionem vel demonstrationem, alicuius.*)

The truth, then, which in reality is identical with the essence, is ontological truth; what it adds to the essence is not something really distinct but only a note, the *ratio* precisely which is the relation "cognoscible by the intellect."

To sum up, we have the following order:

(1) The essence (which is in reality an intelligible quiddity) has ontological truth because, as a quiddity, it is a being (*ens*); that is, it has a relation to existence (*esse*). This is the necessary foundation, cause, or reason for the formal truth which is proper to the judgment.

(2) A judgment is true because by it we attribute *esse* to a quiddity or objective structure (*dispositio rei*) which in fact we see *to be* thus related to existence (*cui competit esse*).

(3) But the essence itself, which is in reality a quiddity, has two (logically distinct) relationships, one to "existence" and one to "being known."

This is the reason why, in many passages, the following three theses are placed on the same plane: the object of the intellect is being; it is truth; it is the quiddity.⁹ It is not strange, therefore, that in this context we again meet the dictum, "Judgment is concerned with existence." In the seventh objection of *In Sententias*, I, D. 19, q. 5, a. 1, the antithesis which totally denies any identification of essence and truth is deduced from the thesis that truth is found only in composites (*complexa*), that is, in the judgment, whereas in the thing itself and in the apprehension truth cannot be found. The solution invokes our dictum:

The first operation is concerned with the quiddity of the thing, the second is concerned with its existence. And since the essence of truth is founded in the existence and not in the quiddity, as has been said, truth and falsity are properly found in the second operation, and in its sign which is the enunciation, and not in the first operation nor its sign which is the definition, except in a qualified sense. (*Prima operatio respicit quidditatem rei; secunda respicit esse ipsius. Et quia ratio veritatis fundatur in esse et non in quidditate, ut dictum est, ideo veritas et falsitas proprie invenitur in secunda operatione, et*

in signo eius quod est enuntiatio, et non in prima, vel signo eius quod est definitio, nisi secundum quid.)

Here *ratio veritatis* evidently means "the essence of truth." The expression "not in the quiddity" must not be taken too literally; for then ontological truth would itself be completely excluded from the essence, whereas the whole article is directed against such absolute exclusiveness. The phrase must be understood "as has been said," that is, with the implication that the quiddity, inasmuch as it is being (*ens*), is a foundation, but only an indirect foundation, of formal truth. The same reasoning justifies predicating "truth" in a qualified sense of the concept and of the definition. For, as St. Thomas continues:

Just as the existence of the quiddity is an intentional existence, so also according to that existence there is said to be truth in the first operation of the intellect; and in this way a definition is called true. (*sicut etiam quidditatis esse est quoddam esse rationis et secundum istud esse dicitur veritas in prima operatione intellectus; per quem etiam modum dicitur definitio vera.*)

Evidently in these passages the quiddity is the "conceived quiddity," a representation in the intelligence, where it has an intentional existence (*esse rationis*).

The following three formulas have then a close connection: (1) Formal truth is found uniquely in the judgment of the intellect; (2) formal truth has its foundation rather in the *esse* than in the quiddity; (3) the judgment is concerned with existence.

The first formula expresses the simple intuition of a fact, an intuition wherein we grasp the meaning of "truth." We realize that we speak of truth properly so-called only when we have to do with a judgment. The second formula likewise expresses an intuition of an internal fact. We realize that we judge only when we affirm, "It *is* as we represent it." From these two facts the third formula is derived.

All this, however, does not prevent the quiddity from also having its ontological truth, a truth in a derived sense, but a sense necessarily related to formal truth. For the existence (*esse*) in question is that of a veritable quiddity, whether simple or composite; and what the judgment affirms is the *esse* of an objective structure, hence of something quidditative: "So it is" (*ita est*).

We deliberately made the qualification "a veritable quiddity," for the human mind can make a mistake even in its first operation where it is

endeavoring to think of a quiddity, an objective structure. Thus, as we have already noted in passing, a definition can be accidentally false. An example (not taken from St. Thomas) would be that of a "regular pentahedron." There really are regular polyhedrons, but what the species of this genus are can be determined only by a profound study. Ever since the days of Theaetetus we have known that there are only five species of regular polyhedrons, and the pentahedron is not one of these species. If then we specify the generic concept "regular polyhedron" by the specific difference "having five faces" the resulting concept "regular pentahedron" is false, for it contains a contradiction, even though that contradiction is not revealed except by careful scrutiny. The "essence" regular pentahedron cannot exist. On the other hand, if we are dealing with a veritable essence which can exist (for example, a regular tetrahedron; or, more simply, something extended) we shall be able to discover its referability to existence precisely by reason of the intelligibility of the essence. Thus we are justified in speaking of a *veritable* essence: it is an essence which can have existence (*cui competit esse*). Thus, being and truth (*ens et verum*) are convertible.

Ontological truth is also found in a complex quiddity, whether that quiddity be a definition or just an objective structure or disposition. This being so, it is possible for us, by reflecting upon our representation of such a veritable quiddity, to discover there its truth and see that it is being (*ens*), that it exists. In this way St. Thomas's theory teaches us the possibility of discovering the *esse* and of affirming it. Later on, in the critical part of the theory we shall see that this precisely is the doctrine of St. Thomas. We find that this complex quiddity exists in our mind as data which have come from without. Our act of judging follows upon a critical reflection on these data. Now the two elements pertaining to these data—their content, and the fact that they have come from without—can be of importance for that critical reflection. After that reflection, various judgments can result, various because of diversity of origin (some of our judgments originating from reflection on the *content* of the data, and others originating from reflection on the process whereby the data have come to exist in the mind).

2. THE EXISTENTIAL COMPONENT OF THE JUDGMENT

We have already said that the Thomist theory, teaching as it does a very close relationship between the judgment and existence, and referring the

mere quiddity rather to the apprehension, thus emphasizes the existential component of every judgment and hence, in logical considerations, stresses the existential sense of the copula of the proposition. Our recent discussions, however, should put us on guard against an exaggeration of this thesis. The existence in question is not always an actual existence (as Brentano thought), for the *esse* which is affirmed in every judgment does not always imply an actuality. Rather what is necessarily involved is the essential relation of the quiddity to existence; by reason of this relation the quiddity is *being*. This is necessary, but also sufficient, for if this relation is affirmed we have a judgment, which is the operation concerned with existence. This relationship is sufficient for certain judgments of the very highest importance; namely, universal, necessary, and scientific judgments. Just as we can speak of a being, in the nominal sense, without actual existence, so also we can form a true universal judgment affirming *esse*, even though the subject of the proposition be not actualized here and now in an existent specimen. For the nexus, which is precisely what is affirmed by a judgment, is a "being" in the nominal sense (*id cui competit esse*). There can be no doubt that this is the position of St. Thomas, and we shall soon see some striking examples in confirmation of this assertion. But for the moment a single passage must suffice, a passage, however, which is quite developed and of the highest importance.

Essences are "being" (*ens*) as imitations of the divine perfections. As such, however, they are only "possibles"; in themselves they do not have existence. Prior to creation they existed in the divine intellect as ideas or *rationes*; they existed in the divine omnipotence as in their efficient cause, and they existed in the divine goodness as in their final cause.¹⁰ Exactly the same holds both for the nexus which is affirmed in a judgment and for the relationship of the terms (*habitus terminorum*) in a proposition. In a phrase from *De veritate*, q. 23, a. 4, ad 1, the "existence" (*esse*) of the relationship between the terms of a proposition is placed on the same plane as that of essences or natures:

... the necessary mutual relationship of terms in a proposition such as "man is rational" or "the whole is greater than its part." ... (. . . necessariam ad invicem habitudinem terminorum qui in aliqua propositione ponuntur, sicut hominem esse rationalem vel totum esse maius sua parte. . . .)

This idea is developed at length in *Quodlibetum* 8, a. 1, an article which, despite its strange title, "Whether the aforesaid sextuple is the creator"

(*utrum senarius praedictus sit creator*), is rich in important doctrine. In this article we read:

Any nature can be considered in three ways. First, the nature can be considered according to the existence it has in individual things; as the consideration of the nature of a stone in this stone or that stone. Second, it can be considered according to its intelligible existence; as the nature of stone is considered as it exists in the intellect. Third, the nature can be considered absolutely, inasmuch as it abstracts from both existences; according to this consideration the nature of a stone or of anything else is considered in regard to those things only which necessarily belong to such a nature. (Triplex est alicuius naturae consideratio. Una, prout consideratur secundum esse quod habet in singularibus; sicut naturae lapidis in hoc lapide et in illo lapide. Alia vero est consideratio alicuius naturae secundum esse suum intelligibile: sicut natura lapidis consideratur prout est in intellectu. Tertia vero est consideratio naturae absoluta, prout abstrahit ab utroque esse; secundum quam considerationem consideratur natura lapidis, vel cuiuscumque alterius, quantum ad ea tantum quae per se competunt tali naturae.)

This triple consideration of the nature or essence in the Thomist theory of universals is common knowledge, but sufficient importance is not always attached to the doctrine expressed in the closing words of the above text. The "absolute consideration of the nature" abstracts from the actual existence of the nature, and hence does not consider the nature either as in its individual realizations or as in the intellect which universalizes it. It is essential, however, that this consideration be about the relationship of the nature to its properties (*propria*), for these properties are what necessarily belong to such a nature (*ea quae per se competunt tali naturae*). This consideration indeed consists in studying these relations.¹¹

These relations are what are affirmed in *per se* judgments; that is, judgments which, after consideration of these relations has been made, affirm, "This is," even if the existence (*esse*) is not realized in a concrete case. Before forming this kind of judgment we have only to consider the essential relation of the nature, its objective structure, for this relation itself is, like an essence, associable with existence (*cui competit esse*). St. Thomas immediately gives an example of what he means. These natures, he continues, have a certain order among themselves, an order based upon the triple consideration. According to the first and the third consideration, the order is always the same:

For the absolute consideration of a certain nature is prior to its consideration as having existence in individual things. (prior enim est consideratio alicuius

naturae absoluta quam consideratio eius secundum esse quod habet in singularibus.)

But as regards the "existence in the intellect" a distinction must be made. In an intellect such as human beings have, an intellect which receives its data from things, the nature which is considered according to its existence in the intellect is posterior to the two other "natures," for the knowable thing exists prior to knowledge of it (*scibile praecedat scientiam*). But in an intellect which is the cause of things, God's intellect, the nature which is considered according to its existence in the intellect has priority over the two other "natures." Such is the case of a created nature as it exists in the ideas of God. We have, then, this order:

The first consideration of any caused nature is the consideration of it as it exists in the divine intellect; the second consideration is of the nature itself absolutely; the third is as it has existence in things themselves, or in the angelic mind; the fourth, as it has existence in our intellect. (Uniuscuiusque naturae causatae prima consideratio est secundum quod est in intellectu divino; secunda vero consideratio est ipsius naturae absolute; tertia vero secundum quod habet esse in rebus ipsis, vel in mente angelica; quarta secundum esse quod habet in intellectu nostro.)

It is no inordinate desire for systematization that inspired St. Thomas to establish this order; the facts themselves require this order. For:

In these, therefore, what is prior is always the reason for what is posterior; and when the posterior is taken away, there remains what is prior, but not conversely; and hence it is that what belongs to a nature according to its absolute consideration is the *reason* why it belongs to a nature as it exists in individual things, and not conversely. (in his ergo illud quod est prius semper est ratio posterioris; et remoto posteriori remanet prius, non autem e converso; et inde est quod hoc quod competit naturae secundum absolutam considerationem, est *ratio* quare competit naturae alicui secundum esse quod habet in singulari; et non e converso.)

Here then we have a universal thesis with regard to judgments that affirm essential relations (*habitudines, Sachverhalte*): first of all the judgments are true of the nature in itself, considered absolutely; secondly, they are true of the singular realizations in which the nature has actual existence. The truth of that first stage is the reason why there is also truth in the second stage, and why necessary (*per se*) judgments (provided they are pronounced by an intellect) are *true* even if no singular case exists here

and now in which the nature under consideration is actualized. A judgment pronounced on the nature considered absolutely has priority over a judgment pronounced on a singular instance. St. Thomas makes an immediate application of this thesis:

For Socrates is rational because man is rational, and not conversely; hence even if Socrates and Plato did not exist, still rationality would belong to human nature. (Ideo enim Socrates est rationalis quia homo est rationalis et non e converso; unde dato quod Socrates et Plato non essent, adhuc humanae naturae rationalitas competeret.)

If no human being existed—as was the case prior to creation—still man would necessarily be possible, for he is a being. The same is true of the relation (*habitus, dispositio, Sachverhalt*) between human nature and its essential property, rationality. This very relation is “being” and it will be actual the moment that a human being is actualized. Hence, if no human being were in existence and the divine or some angelic intellect made the judgment, “Human nature is rational,” that judgment would nevertheless be *true*, and would be concerned with “existence,” an existence which is necessarily possible or realizable.¹²

We must maintain, then, that “the judgment is concerned with existence” and that this “existence” is the “act of the essence.” But for necessary and universal judgments it suffices that the affirmed nexus be *being* in the sense of “that to which existence is proper” (*cui competit esse*); that is, that it necessarily has a relation to existence, as in the case of substance or of human nature itself. This is why St. Thomas uses the formula, “Rationality belongs to human nature” (*humanae naturae competit rationalitas*). This is the proper meaning of the scientific judgment. The judgment used as an example is even better formulated as, “Man is rational.” Such a formula has priority over the universal formula, “Every man is rational”; *a fortiori* it has priority over the formula, “All men are rational.” The reason for this is the same as that given above by St. Thomas, “*For Socrates is rational because man is rational*”; that is to say, the formula “Man is rational” has priority over the other formulas because the “absolute consideration of the nature” has priority over the other considerations. In the formula, “Man is rational,” emphasis can be placed on “is” (as frequently happens in English); in so doing, one is emphasizing the existential component of the judgment.

The nexus between the subject and predicate affirmed as *being* in these *per se* judgments is as invariable and necessary as the essences themselves.

St. Thomas, in a passage already cited (*De ver.*, q. 23, a. 4, ad 1), describes this nexus as "the necessary mutual relationship of terms in a proposition such as 'Man is rational' or 'The whole is greater than its part.' " In *Contra gentiles*, II, 36, he calls the nexus an "order": "The necessity of the order which the predicate has to the subject" (*necessitatem ordinis qui est praedicati ad subiectum*).¹³

Everything that we have seen is valid only for *per se* (necessary) judgments such as we have described them. Especially is this true of the fact that the relationship is predicated primarily of the nature considered absolutely, and only secondarily (and by reason of the primary predication) of the nature in its individual realization. But if there is question of an accidental predicate the order is inverted. Thus we read in the *In Metaphysicam*, V, lect. 7, n. 845:

Accidental predicates are predicated *per prius* of singulars and *per posterius* of universals, whereas the converse is true of *per se* predicates. (*Praedicata per accidens per prius praedicantur de singularibus et per posterius de universalibus cum tamen e converso sit de praedicatis per se.*)¹⁴

But here there is no question of scientific judgments; there is no necessary relationship involved, but only a "possible" one, between the subject and predicate. Thus we read in *Contra gentiles*, I, 82:

We call enunciabiles not necessary but possible when there is no necessary relation of the predicate to the subject. (*Non necessaria sed possibilis enuntiationes dicimus, quando non est necessarius ordo praedicati ad subiectum.*)

Let us refer once more to the words which close the exposition of *Quodlibetum*, 8. In the consideration of a nature we have the following order: the nature is first in the divine intelligence; then there is the nature absolutely considered; then comes the nature considered according as it has existence in things themselves or in an angelic mind; and, finally, the nature according as it has existence in our human intellect. In each instance, the preceding consideration of the nature justifies the succeeding one. Finally, St. Thomas tells us:

Similarly also the divine intellect is the reason for the nature absolutely considered and in singulars; and the nature absolutely considered and in singulars is the reason and in a sense the measure of the human understanding. (*Similiter etiam intellectus divinus est ratio naturae absolute consideratae et in singularibus; et ipsa natura absolute considerata et in singularibus est ratio intellectus humani, et quodammodo mensura ipsius.*)

We have seen that "reason" (*ratio*) is here equivalent to "for . . . because" (*ideo . . . quia*). We have already been told that the nature absolutely considered (in *per se* judgments) is the norm for human knowledge. St. Thomas here adds, as an application of the general principle, that the same thing must be said of the nature realized in singular instances. Clearly this is a consequence of the general rule which states that the human mind, as opposed to the angelic intellect (which receives its data directly from God), must receive its data from the sensible, in which alone the singular realizations of the nature can exist. In the mind the nature receives a universal existence; in the mind the necessary relation also becomes universal. But the human mind must read this necessity (which is universal inasmuch as it is necessary) in concrete instances: "the nature in singular instances is the reason for human understanding."

3. THE ETERNAL TRUTHS

One might be tempted to speak of these necessary relations (*habitudines necessariae*) between the terms of a *per se* proposition as "eternal truths." St. Thomas, however, does not do so, except in a restricted sense. For if "truth" means "truth in the proper sense, formal truth," it is found only in an intelligence.¹⁵ In consequence, an eternal truth is found only in an eternal intelligence. Whence we are told in the *Summa theologiae*, I, q. 16, a. 7:

Hence, if no intellect were eternal, no truth would be eternal. Now because only the divine intellect is eternal, in it alone truth has eternity. Nor does it follow from this that anything else but God is eternal; since the truth of the divine intellect is God Himself. (Unde si nullus intellectus esset aeternus, nulla veritas esset aeterna. Sed quia solus intellectus divinus est aeternus, in ipso solo veritas aeternitatem habet. Nec propter hoc sequitur quod aliquid aliud sit aeternum quam Deus, quia veritas intellectus divini est ipse Deus, ut supra ostensum est.)

Further back we learned, from *Contra gentiles*, II, 36, that "the necessity of the order which the predicate has to the subject" does not imply the actual existence of the subject. The rest of the passage tells us that the "truth" of these propositions does not imply the existence of an intellect other than the divine intellect:

The truth . . . does not require that a thing exist always; except perhaps the divine intellect in which all truth is rooted. (Veritas . . . non cogit aliquam

rem esse semper; nisi forte intellectum divinum in quo est radix omnis veritatis.)

There is no created "eternal truth"; and there is only one uncreated truth, and it is identical with God. Evidently we can speak of eternal truths which are valid for created things, but these truths are found only in the divine intellect, as diverse relationships towards different things and their mutual interrelations. We are told in the *Summa theologiae*, I, q. 16, a. 7, ad 1:

The nature of a circle, and the fact that two and three make five, have eternity in the mind of God.¹⁶ (Ratio circuli et duo et tria esse quinque habent aeternitatem in mente divina.)

The "possibles" as well as their necessary relationships have an eternal existence only in God; it is only in the divine intellect that they are known with truth from eternity.¹⁷

The "necessary relationships" between things which are represented by the subject and the predicate of a proposition have an eternal validity (it is by these words that we could translate the *competit* of the formula, "*humanae naturae competit rationalitas*"); but before creation they have an existence and a formal truth only in the divine intellect. Nevertheless, one can say of the universal, the complex as well as the incomplex, that it is always and everywhere (*semper et ubique*, we are told in the *In Posteriora Analytica*, I, lect. 42, n. 5). But this can be said only in a restricted sense, that is, "not by way of affirmation" (*ibid.*, n. 6):

Hence this is to be understood after the manner of a negation, or of an abstraction; because the universal abstracts from every determined time and place. Hence as regards itself, just as it is found in any one subject in one place or time, so it is its nature to be found in all [subjects of that class]. (est ergo hoc intelligendum per modum negationis seu abstractionis; quia scilicet universale abstrahit ab omni determinato tempore et loco. Unde quantum est de se, sicut invenitur in quolibet, in uno loco vel tempore, sic natum est in omnibus inveniri.)

As the universal is realized in one instance, so it will be found again necessarily (*natum est*) in every instance; as it is here and now, so it will be always and everywhere, on condition that it is realized.

The necessary relations, then, cannot be called diverse "eternal truths." But it must be said that once a created intellect affirms them, such an

affirmation is a veritable formal truth, even if the instance is not realized actually, for the judgment affirms the relation as "being" (*ens*), as objective.

4. FRANZ BRENTANO'S THEORY OF THE JUDGMENT

Some of the elements of St. Thomas's theory of the judgment may be found in the doctrine of Franz Brentano, whose teaching has profoundly influenced many philosophers and even entire schools. Brentano was of the opinion that he himself had discovered these elements or, at least, had rediscovered them after Descartes. But in following out the consequences of his discovery Brentano went astray, and thus has thrown discredit on his valuable starting point. A summary exposition of certain theses of his work can throw new light on the exact sense of St. Thomas's theory.¹⁸

To begin with, Brentano insists on the fact that representation and judgment are two different fundamental classes of psychic phenomena (*zwei verschiedene Grundklassen psychischer Phänomene*). A third class is that of the emotions, in the widest sense of the word. Such division, and the words "fundamental class" (*Grundklasse*), sufficiently show that Brentano sees a profound difference between the representation and the judgment. St. Thomas, of course, is not opposed to this doctrine, since he himself puts so divisive a caesura between the judgment and the apprehension of data. With St. Thomas the judgment bears on these data and its very essence is an affirmation or a denial of their reality (*ita est, vel ita non est, in re*). Brentano (in *Kr. II*, 38) maintains the same position:

We do not thereby deny that every judgment presupposes a presentation. Rather we maintain that every object upon which judgment is passed is admitted into consciousness in a twofold manner, as conceived (presented), then as admitted or denied. (Dabei leugnen wir nicht, dass alles Urteilen ein Vorstellen zur Voraussetzung habe. Wir behaupten vielmehr, dass jeder Gegenstand, der beurteilt werde, in einer doppelten Weise in Bewusstsein aufgenommen sei, als vorgestellt und als anerkannt oder gelehnet.)

Brentano, therefore, demands, before every judgment, an object represented. This object is present in our consciousness in two ways, first as simply represented, and then as affirmed or denied. This is manifest from internal observation of the processes of our own mind. And yet, although this thesis only formulates a fact of our internal experience, Brentano suggests (*ibid.*, p. 39) that the thesis has been universally neglected:

Still this has not prevented the true relationship between concept and judgment from being generally misunderstood up to the present. (Freilich hat dies nicht verhindert, dass das wahre Verhältnis zwischen Vorstellen und Urteilen bis jetzt allgemein verkannt wurde.)

Brentano is fearful of further misinterpretation, and so proceeds to criticize a number of prevalent doctrines on the judgment, especially those of English authors. The chief opposing theory of the judgment looks upon the judgment as not differing essentially from the representation, but as being only a representation composed of diverse ideas. In Chapter I we followed St. Thomas in rejecting this interpretation of the composition of the judgment, even though some Scholastics seem to uphold it. Brentano has no difficulty in refuting this opinion. If I hear the question, "Is this tree red?," I form for myself a composite representation, for I *understand* the question. But I can still refrain from making any judgment (*ibid.*, p. 45). Refutation of this opinion is also shown by the case of purely existential judgments, such as "A exists"; this is truly a judgment and yet it does not suppose any composite representation.

The clearest exposition of Brentano's opinion is found undoubtedly in a passage of his *Vom Ursprung sittlicher Erkenntnis*, where he also gives his historical view on the question (*Kr.*, III, 15 sq.). The historical view we believe to be erroneous. Brentano says:

The first fundamental class is that of the concepts in the widest sense of the word (Descartes' *ideas*). It comprises concrete intuitive concepts as, for example, the senses present them to us, as well as nonintuitive concepts.

The second fundamental class is that of the judgments (Descartes' *judgments*). Before Descartes, these had been thought to be joined with the ideas in one fundamental class. Even after him some fell again into the same mistake. They thought, namely, that the judgment consisted essentially in the composition or relation of ideas one to another. That was a grievous error as to their true nature. One may put together ideas or relate them one to another as one wishes. As when one says, a green tree, a gold mountain, a father of a hundred children, a friend of science—so long as, and to the extent that he does no more, he fails to make a judgment.

What then distinguishes the cases where I not only have an idea, but also make a judgment? There is here added to the idea a second intentional relation to the object conceived, that of a recognition or of a rejection.

(Die erste Grundklasse ist die der Vorstellungen im weitesten Sinne des Wortes [Descartes' *ideae*]. Sie umfasst die konkret anschaulichen Vorstellungen, wie sie uns z. B. die Sinne bieten, ebenso wie die unanschaulichsten Begriffe.

Die zweite Grundklasse ist die der Urteile [Descartes' *iudicia*]. Diese hatte

man vor Descartes mit den Vorstellungen in einer Grundklasse geeinigt gedacht: ja nach ihm verfiel man zum anderen Male in diesen Fehler. Man meinte nämlich, das Urteil bestehe wesentlich in einem Zusammensetzen oder Beziehen von Vorstellungen aufeinander. Das war eine gröbliche Verkennung seiner wahren Natur. Man mag Vorstellungen zusammensetzen und auf einander beziehen wie man will, wie wenn man sagt ein grüner Baum, ein goldener Berg, ein Vater von 100 Kindern, ein Freund der Wissenschaft; solange und sofern man nichts Weiteres tut, fällt man kein Urteil. . . .

Was unterscheidet also die Fälle, wo ich nicht bloss vorstelle, sondern auch urteile? Es kommt hier zu dem Vorstellen eine zweite intentionale Beziehung zum vorgestellten Gegenstande hinzu, die des Anerkennens oder Verwerfens.)

What is most astonishing is that Brentano thinks that prior to Descartes all philosophers lumped together representations and judgments into a single fundamental class. Actually, the Scholastics were unanimous in distinguishing, with Aristotle, the first and the second operations of the mind. But perhaps Brentano is right (with regard to many philosophers) in the exposition which he gives of the doctrine he is criticizing: "They were of the opinion that the judgment consists essentially in a synthesis, or a putting of representations into mutual relation." Such a doctrine does indeed put the two operations on the same plane. We cannot deny that many Scholastics fell into that error. Certainly the philosophers whom Brentano discusses in his psychology did. They neglected too much, or even entirely, the very essence of the judgment: the activity of the mind referring the representation to the thing, the very affirmation or negation, *ita est (vel non est) in re*. This activity is strongly emphasized by the final words quoted from Brentano: "[In the judgment] there is added to the idea a second intentional relation to the object conceived, that of a recognition or of a rejection."

Without the least doubt, St. Thomas is not touched by this criticism. We have seen above that he defends, with as much clarity and vigor, the very thesis discovered anew by Brentano. And St. Thomas examines more profoundly the complexity of the representation in its origin, and he emphasizes no less strongly the difference *in nature* between the mind's two operations.

Certainly Brentano merits the praise given him by his pupil, Stumpf:¹⁹

That Brentano, as against the slipshod position of the old association-psychology, emphatically pointed out the difference between even the most closely connected ideas and the judgment, will always be considered as worthy of the highest praise. (Dass Brentano gegenüber dem Schlendrian der alten Assoziations-psychologie nachdrücklich auf den Unterschied einer noch so festen

Vorstellungsverknüpfung von einem Urteil hinwies, wird man ihm allezeit als hohes Verdienst anzurechnen haben.)

We do not wish to lessen Brentano's merits; but we attribute them also to St. Thomas. We must give credit where credit is due, especially since Brentano was of the opinion that this doctrine was unknown prior to Descartes.

What is this "intentional relation to the object conceived," this relation which the judgment introduces after the representation? St. Thomas taught that the first operation is concerned with the quiddity, the judgment is concerned with existence; and we have striven to probe into the meaning of this doctrine as deeply as possible. Brentano said that the judgment is "a second intentional relation"—let us note that the concept of intentionality is a scholastic residue in Brentano's philosophy. This second relation is that of a "recognition or of a rejection." To understand what this means we must, perhaps, insist more on the fact that affirmation and negation are absent from the representation than upon the fact that they *constitute the essence* of the judgment.²⁰

"Recognition" (*Anerkennen*) and "rejection" (*Verwerfen*) are expressions of the fact that the "intentional relation" to the object, proper to the judgment, is concerned precisely with the *esse* of that object. The preceding representation already had its proper intentional relation to the same object, but that relation was concerned with the quiddity. And so we see that Brentano had rediscovered, almost literally, the dictum of St. Thomas: "The first operation is concerned with quiddity, the judgment is concerned with existence" (*prima operatio respicit quidditatem, iudicium respicit esse*). There precisely do we have the intentional relations and the terms to which these intentions are directed.

A. *Errors of Brentano.* One of the arguments upon which Brentano bases his thesis consists in an attempt to reduce all the propositions studied by logic to *purely* existential propositions.²¹ But this attempt reveals an error in Brentano's thought, an error which proved devastating for his whole theory: the *esse* with which the judgment is concerned is, in Brentano's opinion, immediately and uniquely *actual existence*. We cannot recount all the details of his thought; we call attention to only one point (perhaps the principal point) and its devastating consequences for universal affirmative propositions, hence for scientific propositions *par excellence*, for example, "All men are mortal."²² This proposition is true, even if in fact

there is no man existing. But if every judgment is existential, then, in that supposition, says Brentano, the proposition does not seem to be true. He says that this proposition

... seems to assert the nexus between "man" and "mortal." This connection evidently does not exist if no man exists. (. . . scheint die Verbindung von "Mensch" und "sterblich" zu behaupten. Diese Verbindung besteht offenbar nicht wenn kein Mensch besteht.)

Evidently (*offenbar*), so we are told, the nexus (*Verbindung*) between "man" and "mortal," which seems to be affirmed by the universal proposition, does not exist if no man actually exists. But on the other hand this universal proposition cannot be false. In seeking a resolution of this paradox some authors offer the following explanation:

Consequently the proposition appears to assert the nexus between "man" and "mortal" only under the presupposition of the existence of some man. (Somit scheint er die Verbindung von "Mensch" und "sterblich" nur unter der Voraussetzung der Existenz eines Menschen zu behaupten.)

The truth of the universal proposition would then be saved, if it supposed implicitly the existence of the subject, hence at least of one man. But, says Brentano, surely that is not what we mean to say by the proposition. Hence another explanation is proposed, which saves both the universal truth and the existential character of the universal proposition as well: at bottom, the universal proposition is not affirmative but negative; and this is true of every universal affirmative proposition:

The categorical sentence, "All men are mortal," has the same meaning as the existential proposition, "An immortal man does not exist," or, "There is no immortal man." (Der kategorische Satz "alle Menschen sind sterblich" hat denselben Sinn wie der Existentialsatz "ein unsterblicher Mensch ist nicht" oder "es gibt keinen unsterblichen Menschen.")²³

The categorical proposition, "All men are mortal," would only mean, "There is no immortal man"; and this proposition is explicitly existential, and is always true, even when no man exists.

But certainly this is not an acceptable solution of the problem.²⁴ The proposition, "All men are mortal," or better, "Every man is mortal," or better yet, "Man is mortal," is true. It is primarily affirmative; it affirms that man is mortal by nature. This is why it does not suppose the actual

existence of any man; it is apodictic and not only assertive. It does not signify primarily what is said by the so-called "equivalent" negative proposition, the negative being an inference from the affirmative proposition. For the universal proposition expresses an affirmation of what St. Thomas calls the necessary relationship (*habitus necessaria*) between the terms, a universal relation; and, generally speaking, this positive element is what we primarily "understand." And yet such a judgment affirms the *esse* of this relation, as Brentano indeed had seen. But it need not affirm an *actual existence*. The nexus existed antecedently in the representation, since this latter is composite, a point likewise well brought out by Brentano. But the judgment is an affirmation of this nexus as being (*ens*), that is to say, that to which existence is proper (*cui competit esse*). The nexus is recognized as being, because it is known as necessary. And thus, when we judge, a transition is made from the "quiddity" to the *esse*, from the pure representation to the knowledge and affirmation of the objectivity of this representation.

Let us now reread the marvelously clear exposition of *Quodlibetum* 8, which we analyzed above, on the "nature considered absolutely" and on the priority of this nature. We consider a nature "absolutely," precisely when we study its essential relations to its properties (*propria*) in abstracting from the actual existence it can have, whether singularly in its realization, or universally in our mind.

This is why the judgment, "Man is mortal," remains true, even if Socrates and Plato and all other men do not exist. However, to have a formal truth, and hence a *true* judgment, there has to be a mind which judges absolutely. Hence the desperate attempt to reduce every universal affirmative judgment to a purely existential negative proposition becomes superfluous; and yet the judgment "is concerned with existence."

Socrates is mortal, because man is mortal. The judgment, "Socrates is mortal," has reference to an actual existence, the mortal existence of Socrates. The judgment, "Man is mortal," abstracts from this actual existence (without, of course, denying it), but not from being (*ens*). Only understood thus can the essential relations of the nature absolutely considered be prior to its singular realization with a singular existence, and prior to its being understood as a universal when it has an intentional existence in the mind. [These two disparate types of existence are accidental to the nature since neither is essential to the nature as such.] Hence these same internal essential relations of the nature can be the reason for the singular and universal considerations. For the human intellect, how-

ever, the singular realization [in one instance at least] must precede the [abstractly and] universally understood nature. In fact the singular realization is the reason for man's knowledge of the universal, since man knows the nature from its singular realization.

What we have said will suffice, it seems to us, for making a judgment both on the great merits of Brentano in his doctrine of the judgment, and on the fatal error which has confused his otherwise clear thesis that "The judgment is concerned with existence."

This error is perhaps the main reason why his doctrine has not been generally accepted. Another reason is found in its disastrous consequences for formal logic, though these consequences were not feared by Brentano and his pupils. We may be here permitted a word concerning these consequences. Let one read the general rules of Brentano.²⁵ He himself says of them, "These are rules which a logician of the old school could not hear without horror." In consequence of these rules many derived theorems are bereft of their foundation; for example, those concerning the conversion of propositions, and other similar ones. Some of the classical rules are declared false, and inversely, in this logic, rules must be admitted which are false in classical logic.²⁶ There are also four modes of the syllogism which Brentano has to sacrifice:²⁷ *Darapti*, *Falapton*, *Bamalip* (*Baralip*), and *Fesapo* (*Fapesmo*).

These modes had already been rejected by some English logicians and later also by Couturat and many others. At bottom the reason is the same, namely, the existential meaning, in their opinion, of some judgments. A particular judgment, "Some men are red," demands, according to them, if it is to be true, the actual existence of these men; and this is not demanded for a universal affirmative judgment. For this reason also the conversion of a universal affirmative proposition into a particular proposition (conversion *per accidens*) would be invalid. Suffice it here to make the observation that this thesis is certainly not universally true; essential relations themselves can also be expressed by a particular proposition. Thus the proposition, "Some parallelograms are rhombs," or, "There are parallelograms which are rhombs," is certainly true even if actually no rhomb exists; and it is for this reason that the universal proposition, "Every rhomb is a parallelogram," is convertible into the preceding particular proposition. We have only to look to the veritable sense of the judgment and its existential aspect; there is question here of "mathematical" existence. But all particular judgments can be so understood, excepting those which affirm actual existence.

B. *Remarks.* What we have just said calls for two remarks. (1) In formal logic, there is a dispute concerning the priority, or even concerning the validity, of the understanding of terms according to comprehension and according to extension, both for the judgment and for the syllogism. This dispute is important for formal logic, but much more so for epistemology.²⁸ For the moment we shall content ourselves with a few observations. According to St. Thomas's theory of the judgment the proposition—certainly the scientific proposition—must be understood primarily (and, from the epistemological point of view, uniquely) according to comprehension. His conception of the "nature considered absolutely" and of the judgments on the "necessary relationships" which result from that consideration and find their justification in it, make no sense unless the judgment and the proposition are understood according to comprehension. Obviously, this does not mean that in formal logic considerations of extension, both in relation to propositions and to syllogisms, would have no utility; the contrary is true, but such consideration is only secondary. Early logicians held to the point of view of extension. The later logicians abandoned this point of view, for logics can be constructed from the point of view of comprehension.

(2) St. Thomas deduces the Aristotelian categories from the "modes of being" (*modi essendi*).²⁹ The *esse* involved is the *actus essendi*; that is, existence, as we are told expressly, in the *In Sententias*, III, D. 6, q. 2, a. 2:

Now this existence is in the thing and is the being's act, resulting from the constituents of the thing. (et hoc quidem esse est in re, et est actus entis resultans ex principiis rei.)

This is why, in his theory of the judgment, it is permissible to take the "modes of being" proportionally to the "modes of predication"; for "The judgment is concerned with existence," and predication is made in judging. Thus he can deduce the possible "modes of being"—the categories—from the "modes of predication." What is divided into the categories is evidently not the *esse*, but the *ens*, which has a relation to the *esse*. Here one is reminded of Kant, who also deduces his categories from the judgment; but we must admit that the resemblance goes no further, and that the differences outweigh the similarities.

But there is one conclusion, derived necessarily from the considerations of St. Thomas, which demands our attention; we have already spoken of it more than once in our *Cosmologia*.³⁰ This conception of St. Thomas

admits the possibility of real changes in nature which do not imply any internal change in the objects. Displacement, or change of place, is the classical example of such a change, both with Aristotle and with St. Thomas. The same is true of the last six categories. These changes can be real, and pertain to veritable categories of reality, without implying any internal change in things; for the Thomist doctrine is based on the possibility of different "existential acts" (*actus existenciales*) without each one of these demanding a different "essential act" (*actus essentialis*). If these latter were necessarily different, an internal change would be demanded for every external change. For the particular understanding of the instances of this theory, one must study the special instances, and then the whole theory of the categories of St. Thomas is seen to be clear and logical; but it is not clear, we believe, in any other explanation. We would recommend this to the attention of the metaphysicians at this point in our study of St. Thomas's theory of the judgment.

5. OBJECTIVE STRUCTURE

Throughout the explanation which we have given thus far, we have made use of the word *Sachverhalt*,³¹ a modern philosophical term which expresses the pure, but complex, representation which precedes the judgment, a characteristic synthesis of what will be the subject and predicate in the judgment that follows. In the true affirmative judgment, the complex representation is conformed to reality (*ita est in re*); in the true negative judgment, the negation of the representation for reality (*ita non est in re*) is conformed to the lack of this relation in reality.

We find the term *Sachverhalt* used by many philosophers who were more or less influenced by Brentano. There is nothing surprising in this, as the term corresponds perfectly to Brentano's views on the judgment in these points: (1) the judgment does not consist in a composition of ideas; this composition precedes the judgment and still belongs to the class of pure representations; (2) the judgment is a characteristic operation which in its totality differs entirely from the representation; (3) the judgment affirms (or denies) the content of the representation for reality; it is related intentionally to existence. The error of Brentano, which took actual existence as the sole and direct term of this relation, does not spoil the great value of these points. The content of the representation is then very conveniently called *Sachverhalt* ["objective structure," in our English translation], because it contains a nexus, a relation, an order, which is

found both in the thing and in the representation: the judgment is only a recognition (acceptance), or a rejection of this *Sachverhalt*.

But it is precisely these three points which we have found in St. Thomas's theory of the judgment; for him also, the composition of the concepts of subject and predicate precedes the judgment, and is found antecedently in the concrete sense data; for him also, "to judge" is entirely different from "to be represented," and is the result of a critical reflection on the composite representation; for him also it is the existence which is recognized or rejected in the judgment. For him also this existence is actual existence (*actus entis*), but—and this is what separates his doctrine from that of Brentano and which obviates any fatal consequences—it is not necessary that this actual existence be referred to directly and solely; the judgment can also affirm purely essential relations, but such an affirmation always refers, though sometimes indirectly, to actual existence; it always recognizes that these relations are "beings" (*quibus competit esse*); it always affirms the *objectivity* of the content of the representation.

In this theory the notion of *Sachverhalt* (objective structure) presents itself spontaneously, since the judgment is only the affirmation or negation of a *Sachverhalt*. No wonder then that we find this notion in the theory of St. Thomas; there is even an expression for which *Sachverhalt* is a literal translation: *dispositio rei*. If a judgment is true, the same structure is found in the thing and in the judgment (*in esse* and *in veritate*) as content. Our author uses this term in many texts and sometimes explains it in detail; he examines the nature of this structure, which is different according to different cases, and he attaches much importance to it. It is strange that the *Tabula aurea* of Peter of Bergamo, which devotes more than fifty numbers to the word *dispositio*, entirely neglects the sense of "objective structure" or *Sachverhalt*.

Let us read some passages and recall others already seen. In *Summa theologiae*, II-II, q. 173, a. 2, there was question of the "disposition of phantasms" in our sense. In *Metaphysicam*, IX, lect. 11, n. 1897, told us that "the disposition of the thing is the cause of the truth in thought and in speech" (*dispositio rei est causa veritatis in opinione et oratione*). In *De caritate*, a. 9, ad 1, we met (with reference to *Met.*, II) the dictum: "There is the same disposition of things in existence and in truth" (*eadem est dispositio rerum in esse et in veritate*), which dictum not only expresses a conformity in structure (union or separation of the terms) but also a sort of proportionality between the grades of being and of truth: "The more fully things are beings, the truer they are" (*quae magis sunt entia,*

magis sunt vera). In *Sententias*, I, D. 19, q. 5, a. 1, refers us to the same dictum.

We have also found equivalents of the word *dispositio*: "necessary relationship of terms" (*necessaria habitudo terminorum—De ver.*, q. 23, a. 4, ad 1), and "the necessity of the order which the predicate has to the subject" (*necessitas ordinis qui est praedicati ad subiectum—Cont. gent.*, II, 38).

It is worth our while to study more closely this term, *dispositio rei*, which has become a technical term. Ordinarily, *dispositio* signifies a quality; this is probably the reason why the other meanings have been so much neglected. For the word has other meanings. The term is found in the lexicon of the fifth book of the *Metaphysics*. In St. Thomas's commentary (lect. 20, nn. 1058–61) this general sense is given: "the arrangement of parts in that which has parts" (*ordo partium in habente partes*). There then follows a division into three classes, the second of which, "arrangement according to active power" (*secundum potentiam sive virtutem*), contains the disposition which "belongs to the first species of quality" (*ponitur in prima specie qualitatis*). The third belongs to the genus of quantity (*in genere quantitatis*); it is, in fact, "figure"; that is, the order or disposition of quantitative elements. Finally, the general sense, according to comprehension, is further restricted: the word signifies simply "order," in such wise that, for example, one could speak of *dispositio* in God. A similar division is found in *Summa theologiae*, I–II, q. 49, a. 1, ad 3; and another in *De virtutibus*, a. 1, ad 9. Elsewhere we meet the word in the sense of an active ordering, that is, of *ordinatio*. Thus, in *Summa theologiae*, I, q. 22, a. 1, with an application to Providence:

Disposition may refer either to the plan of the order of things towards an end, or to the plan of the order of parts in the whole. (*Dispositio dici potest tam ratio ordinis rerum in finem quam ratio ordinis partium in toto.*)

Or, with an application to the notion of fate, in *Summa theologiae*, I, q. 116, a. 2, ad 3:

Fate is called a disposition, not that disposition which is a species of quality, but in the sense in which it signifies order. (*Fatum dicitur dispositio non quae est in genere qualitatis sed secundum quod dispositio designat ordinem.*)

"Order" or "structure" is, then, a very fundamental meaning of the term *dispositio*; but the ambiguity of the term can lead to an equivocation. Per-

haps this is the reason why, in *De veritate*, q. 1, a. 1, there are two objections (4 and 5) which use the term in different senses. The fifth objection, which refers again to the dictum of *Metaphysics*, II, indicates, for its solution, the difference between "disposition" in the sense of "quality" and in the sense of "order," where the sense of order as the relation of subject to predicate is already included. This meaning is the only one used in *De malo*, q. 16, a. 6, ad 1, *in contr.* (*dispositio subiecti*), and in *De veritate*, q. 1, a. 11, which compares the "disposition" of sense knowledge, on the one hand to that of the intellect, and on the other to the "disposition" of the objects.

The fullest development of this sense is found in *In Metaphysicam*, IX, lect. 11 (nn. 1896-99, 1903), which we have already consulted many times, though in another context. In n. 1896, truth is the subject of discussion: if the mind considers as united what is united in reality, and considers as separated what is separated in reality, then it has truth; if not, it is in error. In n. 1897, we take a step forward: in a true opinion, there is not only this conformity between the judgment and reality (the composition or the division of the two), but we must also note that priority belongs to the thing which is the cause of the truth. Again the argument is very simple. We are made to note: "It is not because we truly judge that you are white that you are white, but rather the causality is the other way around" (*non ideo tu es albus, quia nos vere existimamus te esse album sed e converso*). And thus the composition of the subject with color is called the cause of the truth of the judgment:

Hence it is clear that the disposition of the thing is the cause of truth in thought and speech. (Unde manifestum est quod dispositio rei est causa veritatis in opinione et oratione.)

Here the *dispositio rei* is exactly the *Sachverhalt* [our "objective structure"], the relation of the subject to the predicate. This is explained further in n. 1898. To begin with, the thesis is repeated:

Truth and falsity in thought and speech should be reduced to the disposition of the thing as to a cause. (Oportet enim veritatem et falsitatem quae est in oratione et opinione, reduci ad dispositionem rei sicut ad causam.)

The objective structure or disposition, we are then told, corresponds to the composition between the subject and predicate of the proposition. The first correspondence is, that in the proposition the functions of sub-

ject and predicate are as those of a matter and its form, and that, therefore, predicates stand for forms (*propter quod praedicata tenentur formaliter*), a maxim to which we shall return in the next chapter. This is the reason why at least an analogous composition must be found in the thing:

And hence if such an operation of the intellect must be correlated with the thing as to a cause, it is necessary that in composite substances the composition of form to matter or the composition of what is after the manner of form and matter, or even the composition of accident with its subject, correspond as the foundation and cause of truth, to the composition which the intellect forms interiorly and expresses in words. (Et ideo, si talis operatio intellectus ad rem debeat reduci sicut ad causam, oportet quod in compositis substantiis ipsa compositio formae ad materiam, aut eius quod se habet per modum formae et materiae, vel etiam compositio accidentis ad subiectum, respondeat quasi fundamentum et causa veritatis compositioni, quam intellectus interius format et exprimit voce.)

Here then we see that the objective structure should be the same, both in reality (at least in its possible existence) and in the representation which is affirmed by a true judgment (*in esse et in veritate*). The structure affirmed by the judgment is the relation between what is signified by the subject and what is signified by the predicate.

The relation between the subject and the predicate is not necessarily that of a matter and of a form in the strict sense; it suffices that the relation be analogous to that of matter and form. Thus as we shall soon see, an arrangement according to shape (*dispositio secundum figuram*), a geometrical relation or an order of quantitative parts, can be described as a composition of matter and form. The judgment is the affirmation or the negation of the conformity of the structure as it is in reality and in the representation.

This conformity is not an exterior likeness, but something more profound. Differences in the representation correspond to objective differences in the nature of the dispositions of reality (n. 1899). We shall return to this in a moment, but let us first give some examples.

In *In Metaphysicam*, IX, lect. 10, we are told of the primacy for our intellect of *act* over *potency*. It is shown here in two geometrical examples (nn. 1888-94). One of them sketches an argument for the theorem that the sum of the three angles of a triangle is equivalent to two right angles; the other, for the thesis that the inscribed angle of a semicircle is a right angle.³² In each of the two demonstrations one must draw an auxiliary

straight line which is not given; among the data it is only "in potency." If it is "actualized" then, in both cases, there is immediately revealed a structure according to shape (*dispositio figurae*) the necessity of which is intuitively evident, and which is then a link in the chain of the demonstration.

It is immediately manifest to one who sees the disposition of the figure that a triangle has its three angles equal to two right angles (n. 1890). (Statim manifestum fit videnti dispositionem figurae, quod triangulus habet tres angulos aequales duobus rectis.)

It is immediately manifest to one who sees this disposition and knows the principles of geometry, that every angle in a semicircle is a right angle (n. 1893). (Hanc dispositionem videnti, statim manifestum est scienti principia geometriae, quod omnis angulus in semicirculo est rectus.)

These simple intuitions show that geometrical intuitions are acquired by reason of the actualized objective configuration (*secundum dispositionem figurarum in actu*—n. 1888). Here the disposition is the same in the figure (*in esse*), in the external sensation (*videnti*), in the phantasm, and in the intellectual representation which is affirmed of the thing: "So it is in reality" (*ita est in re*). In these geometrical cases especially, it is the arranging of the phantasms (*dispositio phantasmatis*), which we met for the first time in *Summa theologica*, II-II, q. 173, a. 2, that plays a preponderant role. In the two cases above, the relation of the elements of the figures is a necessary relation; and this necessity is recognized by the intellect. This fact will be seen to be of the highest importance.

In these geometrical cases the structure is yet a particular relationship, an *order* of geometrical elements. For the general case, that is, for the relation of subject and predicate of every proposition, we are told in *Contra gentiles*, I, 2:

The disposition of things in truth is as their disposition in being, according to the Philosopher (*Metaphysics*, II), and this because truth and being are mutually consequent upon one another; since *the true is when that is said to be which is, and that not to be, which is not*. (*Sicut enim est dispositio rerum in esse, ita et in veritate*, ut patet per philosophum, in II *Met.*; et hoc ideo quia verum et ens se invicem consequuntur; est enim verum, *cum dicitur esse quod est et non esse quod non est*.)

This seems to be a perfect description of an objective structure whose being (*esse*) is affirmed, or denied, by the judgment, by any judgment at

all. As above, so here the *esse* is the cause or reason or foundation of the formal truth which says of the disposition of the representation, "So it is, or is not, in reality." At the same time it must be said that the "being" is the foundation of the ontological truth of the relation which is the objective structure.

The objective structure in mutable objects can itself be mutable; but it can also be a necessary relationship; if the judgment is to remain true, in the first case it has to follow this variation; in the second case, it remains immutably true.³³ It is this similarity of nature, whether of necessity or of contingency, which the dictum of *Metaphysics*, II, is primarily meant to express:³⁴

For since those things which are the cause of the being of other things are the truest beings, it follows that each thing is related to truth as it is related to being. For those things whose being is variable do not have eternal truth. And those things which have a cause of their being also have a cause of their truth. And this happens because the existence of the thing is the cause of the true estimate which the mind has of the thing. For truth and falsity are not in things, but in the mind, as is said in the sixth chapter of this book. (Cum enim ita sit, quod ea, quae sunt aliis causa essendi, sint maxime vera, sequitur, quod unumquodque sicut se habet ad hoc quod sit, ita etiam se habet ad hoc quod habeat veritatem. Ea enim, quorum esse non semper eodem modo se habet, nec veritas eorum semper manet. Et ea quorum esse habet causam, etiam veritatis causam habent. Et hoc ideo, quia esse rei est causa verae existimationis quam mens habet de re. Verum enim et falsum non est in rebus, sed in mente, ut dicitur in sexto huius.)

We are told, then, that there is not only conformity of disposition *in fact* between *esse* and truth, but also conformity as regards the nature, character, and necessity of the disposition. There is even a certain proportionality between the disposition of the thing (as cause) and the truth (as effect), exactly as we have seen above concerning the "foundation of truth" (the *ratio veritatis* of *De caritate*, a. 9, ad 1). It is curious that in this original passage the word *dispositio* is lacking, whereas elsewhere, where the dictum is applied, this word is often used by St. Thomas.

This diverse character of the disposition is, without doubt, best explained in *In Metaphysicam*, IX, lect. 11, n. 1899. There we read:

If the composition and division of the thing is the cause of truth and falsity in thought and speech, it follows of necessity that according to the difference of composition and division there is in things there will be a difference of truth and falsity in thought and speech. Now in things the following difference is

found in regard to composition and division: some things are always conjoined and it is impossible to divide them, just as the sensitive nature is always conjoined with the rational soul and it is impossible to divide the one from the other in such wise that the rational soul is without the power of sensing, although conversely the sensitive soul can be without reason. On the other hand, some things are divided and it is impossible to put them together, such as white and black. . . . Some things admit of contraries for they can be joined or divided, as man and white and running. (Si compositio et divisio rei est causa veritatis et falsitatis in opinione et oratione, necesse est quod secundum differentiam compositionis et divisionis eius quod est in rebus, est differentia veritatis et falsitatis in opinione et oratione. In rebus autem talis differentia invenitur circa compositionem et divisionem; quod quaedam semper componuntur et impossibile est ea dividi; sicut animae rationali coniungitur natura sensibilis semper, et impossibile est quod dividatur ab ea, ita scilicet quod anima rationalis sit sine virtute sentiendi, licet e converso posset esse anima sensitiva sine ratione. Quaedam vero sunt divisa, et impossibile est ea componi, sicut nigrum albo. . . . Quaedam vero se habent ad contraria, quia possunt componi et dividi, sicut homo et albus, et etiam currens.)

The purpose of this number was to give further explanation of what preceded, where there was question of the "structure in actuality and in truth" (*dispositio rei in esse et in veritate*). For every judgment, then, the disposition is, again, in general the relation of the subject and the predicate, or rather the relation of what is signified by the predicate to what is signified by the subject.³⁵

But the *esse*, or the disposition of the being (*compositio et divisio rei*), is also a cause of truth and falsity in this sense, that the *differences* and degrees of necessity of the relationship should be parallel for reality and for the mind. Three cases are distinguished: necessity, impossibility, and contingency. Clearly the first two are more important; the last case is that of a judgment the truth of which varies with the variable disposition (thus n. 1900). In the first two cases the judgment is universal if the subject is universal; it is then also possible to speak of a universal disposition. Thus we read in *In Perihermeneias*, I, lect. 10, n. 4:

A term of this kind is said to signify a universal because the term signifies some nature or structure which is common to many individuals. (Nomen huiusmodi dicitur significare universale, quia scilicet nomen significat naturam sive dispositionem aliquam, quae est communis multis.)

We can then conclude from all this that the phrase *dispositio rei* became in St. Thomas a technical term, perfectly equivalent to the modern term *Sachverhalt* ["objective structure"]. This remains true even though St.

Thomas sometimes uses other terms. We have seen two of these terms, "necessary order" and "necessary relationship" between the terms of a proposition. Since the disposition consists in an order or a relation, the difference is only of words. St. Thomas uses still another formula, one which will be the object of the following section.

6. NATURAL, REMOTE, AND CONTINGENT MATTER

The division of the disposition into three kinds, which we have seen, is formulated also in another manner; namely, as a division into "natural, remote, and contingent matter" (*materia naturalis, remota, contingens*), or (and perhaps even more frequently) into "necessary, impossible, and contingent matter" (*materia necessaria, impossibilis, contingens*). It will be worth our while to take note of this division. In *In Perihermeneias*, I, lect. 13, St. Thomas reviews four kinds of propositions; it is the Aristotelian division according to unity, quality, quantity, and time. St. Thomas adds to them a fifth division which he calls the "division according to matter":

A fifth division of propositions can be made according to matter; this division is based on the relationship of the predicate to the subject; for if the predicate belongs to the subject *per se*, the proposition will be said to be in *necessary*, or *natural matter*; as when we say, "Man is an animal," or, "Man is a being capable of laughing." If on the other hand, the predicate is *per se* repugnant to the subject, excluding the notion of the subject, it will be said to be in *impossible* or *remote matter*; as when we say, "Man is an ass." If, however, the relationship of predicate to subject is such that the predicate neither is *per se* repugnant to the subject, nor *per se* belongs to the subject, the proposition will be said to be in *possible*, or *contingent matter*. (Potest autem accipi quinta divisio enuntiationum secundum materiam, quae quidem divisio attenditur secundum habitudinem praedicati ad subiectum; nam si praedicatum *per se* insit subiecto, dicetur esse enuntiatio in *materia necessaria* vel *naturali*; ut cum dicitur, "Homo est animal," vel, "Homo est risibile." Si vero praedicatum *per se* repugnet subiecto quasi excludens rationem ipsius, dicetur esse in *materia impossibili* sive *remota*; ut cum dicitur, "Homo est asinus." Si vero medio modo se habeat praedicatum ad subiectum, ut scilicet nec *per se* repugnet subiecto, nec *per se* insit, dicetur enuntiatio esse in *materia possibili* sive *contingenti*.)

We must especially note the sense which the word "matter" has here; there is no question of a physical matter, there is question of the *content* of a proposition in general. And this content is again the nexus, the relation (*habitus*) between the subject and the predicate. Once more there is question of the objective structure. And these things which have a neces-

sary, or an impossible, or a contingent relation to other things, a relation to be affirmed by a proposition, are precisely formal (or what can be expressed like a form: *per modum formae*). Even for the subject, which stands for the matter (*tenetur materialiter*), the emphasis is placed on its content or notion (*rationem ipsius*).

Here is the reason for what we have seen above (Chap. II, Sect. 2): if there is question of predicates *per se*, the "nature considered absolutely" (which becomes universal in the intellect) has priority over the individual cases. We read in *In Perihermeneias*, lect. 13, n. 6:

Those things properly belong to singulars which come to be contingently. Those things which *per se* belong to, or are repugnant to, a subject are attributed to singulars under a universal aspect. (Illa proprie ad singularia pertinent quae contingenter eveniunt, quae autem per se insunt vel repugnant, attribuuntur singularibus secundum universales rationes.)

This is also the reason why, when there is question of natural, remote, or contingent matter, this relation is explained as a relation between two forms in the same subject. Thus, in *Summa theologica*, III, q. 16, a. 1, ad 1:

When different forms cannot come together in one *suppositum*, the proposition is necessarily in remote matter, the subject signifying one form and the predicate another. But when two forms can come together in one *suppositum*, the matter is not remote, but natural or contingent, as when I say, "Something white is musical." (Quando formae diversae non possunt convenire in unum suppositum, tunc oportet quod propositio sit in materia remota, cuius subiectum significat unam illarum formarum, et praedicatum aliam. Sed quando duae formae possunt convenire in unum suppositum, non est materia remota, sed naturalis vel contingens, sicut cum dico, "Album est musicum.")

The importance of the division is not in the application we have just seen; namely, that only in contingent matter can the judgment become false after having been true; its importance rather lies in the fact that, in the other matters, we have to do with necessary or with impossible judgments. This is of the greatest importance in scientific principles and conclusions. The great value of these propositions results precisely from this property, that by reason of the necessity of their matter, or of their disposition, they are *par excellence intelligible*. In Chapter IV we shall have much to say about this relation between necessity and intelligibility; for the moment one single text will suffice. It comes from *Contra gentiles*, II, 55:

Necessary things are perfectly knowable by the intellect; whereas contingent things as such are knowable only in a defective manner, because about them we

have not scientific knowledge but opinion; hence the intellect has scientific knowledge of corruptible things in so far as they are incorruptible, that is, to the extent that they are universal. (Necessaria enim perfecte sunt intellectu cognoscibilia; contingentia vero, in quantum huiusmodi, nonnisi deficienter; habetur enim de eis non scientia, sed opinio; unde et corruptibilium intellectus scientiam habet secundum quod sunt incorruptibilia; in quantum scilicet sunt universalia.)

Even the contingent or corruptible has to have some universality and necessity if it is to become an object of scientific knowledge. This thesis also will return again, in Chapter IV, and in the critical part of the theory. The whole is connected with the Thomist theory of abstraction.

At the end of the first chapter, we emphasized the importance of the fact that, in the representation, the nexus between the subject and the predicate of the future judgment is already given. Only thus is it possible for intellectual reflection, which precedes every judgment, to find this nexus in the representation and to examine it. Now this nexus is nothing else than the objective structure, or order, or matter, as we have just seen.

Now the nature of this matter, hence of the nexus, shows itself to be of the highest importance for judgments of a scientific character. The necessity of the matter, the relation, or nexus, is the condition of its intelligibility; the intellectual power, which during the reflection is directed on the disposition, has to reveal this necessity, and in consequence, the intelligibility. Then there will follow the judgment which will say, "So it is" (*ita est*), thus attributing *esse* to the disposition; and which will recognize its objectivity because the mind has discovered it during the reflection.

This is what the analysis, up to now purely phenomenological, has brought to light concerning St. Thomas's doctrine. Even thus early it is evident that this character of the disposition will play a preponderant part in the critical part of the theory. This is why we repeat, that to understand this theory and to appreciate it, even to discover its existence, it is absolutely necessary to know where to look. The character of the objective structure will be the principal part of this research.

St. Thomas, however, has developed this doctrine of the objective structure (*dispositio rei, habitudo terminorum*) more fully, even from a phenomenological point of view. He describes this structure in fine detail. We shall, therefore, follow him in the next two chapters, which treat of the structure of the proposition in general and of the structure of the necessary, or *per se*, proposition in particular.

CHAPTER III

The Structure of the Proposition in General

1. THE PROPOSITION, THE JUDGMENT, AND THE OBJECTIVE STRUCTURE

IN THE PRECEDING CHAPTERS attention was drawn to the importance which St. Thomas's theory of the judgment attached to the objective structure of actuality, or the nexus, or the relationship of terms, both for the origin of the judgment and for its theory. What is especially important, both for the phenomenological part and for the critical part of the theory, is the *nature* of the nexus, whether it is necessary, impossible, or contingent. This finds expression in the technical terms, whether it is in necessary matter, remote or impossible matter, or contingent matter.

This objective structure is found in the judgment, which affirms or denies it, and in consequence is reflected in the proposition as the verbal expression of the judgment. We can, therefore, study the details of this structure in the details of the proposition. But, like the judgment, the proposition bears the marks of a property of the human mind, which proceeds from potency to act, from imperfect knowledge to a more perfect one, which proceeds by "joining" (*componendo*). St. Thomas takes occasion from his description of the structure of the proposition to explain his doctrine of the judgment in more detail.

We can group these details under three headings. First, there are the texts which put the composition of the proposition into correspondence with a certain *identity* in the thing. We shall study this identity. St. Thomas tells us also that there is a difference of function between the subject and the predicate of the proposition, even in the so-called judgments of "identity." He then explains what corresponds to these different functions in the thing and in the mind. The general formula which expresses this difference is: "The subject is taken materially, the predicate formally" (*subiectum tenetur materialiter, praedicatum formaliter*), but this global formula often needs certain nuances which must be examined, for they can have important consequences. And in the end, there is even

a correction to be made in this global rule. This correction has to do with propositions of the highest importance, the *per se*, or necessary, propositions. But let us begin with the thesis which sees, in the proposition, the expression of an affirmation by the mind of a certain identity between the things represented by the subject and the predicate of the proposition.

2. "VERBAL COMPOSITION IS A MARK OF SOME IDENTITY"

This is the formula which, in *Contra gentiles*, I, 36, expresses the structure of the proposition, inasmuch as it affirms the identity of subject and predicate. It signifies that a proposition, such as, "Man is white," means: It is the same subject which is *man* (that is, which is informed by the form *humanity*) and which is *white* (that is, which is informed by the form *whiteness*). This proposition supposes, moreover, that this subject is *a thing*, that the relation really is.

Every proposition contains an affirmation of this relation of identity, and this affirmation holds always (on condition that the proposition is true), but it does not express all the truth concerning the structure of the judgment and of the objective structure. This latter is much richer, even if the proposition expresses a judgment of identity; if there is question of a *per se* proposition it must be still richer.

In the chapter cited from *Contra gentiles*, St. Thomas uses this property of every proposition to demonstrate that we can formulate with truth affirmative propositions about God and His properties, even though the proposition contains a composition, whereas God is in Himself absolutely simple and therefore admits of no composition. If the proposition affirms the identity between the subject and predicate, its composition marks this identity and thus is a "mark of identity" (*identitatis nota*). The same question gets the same answer in *In Sententias*, I, D. 4, q. 2, a. 1, ad 1, where we read:

According to the diversity of concepts [our intellect] forms the predicate and subject, and unites them according to some identity. ([Intellectus noster] secundum diversitatem rationum format praedicatum et subiectum, et secundum identitatem componit.)

The formal notes, that is, the forms contained in the concepts of the subject and predicate, are indeed diverse; that we have to join these concepts is only a consequence of *our* mode of knowing; the composition is

not always attributed by the judgment to the thing as real; this is why it is a "mark of identity."

What is summarily sketched by these two texts is developed at length in *Summa theologica*, I, q. 13, a. 12, which solves the same problem. There we read:

In every true affirmative proposition the predicate and the subject must signify in some way the same thing in reality, and different things in idea. And this appears to be the case both in propositions which have an accidental predicate and in those which have an essential predicate. For it is manifest that *man* and *white* are the same in subject but different in idea; for the idea of man is one thing, and that of whiteness is another. The same applies when I say "Man is an animal"; since the same thing which is man is truly animal; for in the same *suppositum* there is both the sensible nature by reason of which he is called animal, and the rational nature by reason of which he is called man; hence here again predicate and subject are the same as to *suppositum*, but different as to idea. (In qualibet propositione affirmativa vera, oportet quod praedicatum et subiectum significant idem secundum rem aliquo modo, et diversum secundum rationem. Et hoc patet tam in propositionibus quae sunt de praedicato accidentali, quam in illis quae sunt de praedicato substantiali. Manifestum est enim quod homo et albus sunt idem subiecto et differunt ratione; alia est enim ratio hominis, et alia ratio albi. Et similiter, cum dico, "Homo est animal"; illud enim ipsum quod est homo, vere animal est; in eodem enim supposito est et natura sensibilis, a qua dicitur animal, et rationalis, a qua dicitur homo. Unde hic etiam praedicatum et subiectum sunt idem supposito, sed diversa ratione.)

Note that there is here not only question of propositions concerning the attributes of God, but we are given a general conception of the affirmative proposition ("in every true affirmative proposition"). The possibility of affirmative propositions about God is only a consequence of the general theory.

The identity, affirmed by the judgment and expressed by the proposition, is only a restricted identity, as is indicated in the text in three ways. What is "signified" by the subject and the predicate is "the same thing in reality, the same in subject, the same *suppositum*." The first description does not hold absolutely, it holds only "in some way." And rightly, for the thing signified by "man" is not entirely identical with that signified by "white," but identical only under a certain aspect: the two forms meet in the same subject; and this is what is expressed by the two other terms. There is no complete identity; and even in this passage, which for the solution of the problem has so much need of identity, the diversity which makes composition necessary is strongly accentuated. It is a diversity of

formal note (*ratio*), of what is presented as a form of the object in the mind. This diversity of *ratio* can be real in the object, and it often is (the *ratio* of "man," and the *ratio* of "white") but not always; in God the diversity is not real.

The identity, therefore, is not total, for the *rationes* are diverse. The only strictly necessary identity is material identity or identity of *suppositum*. Even when the *rationes* are identical, there is still a diversity of function. Our text continues:

But in propositions where one and the same thing is predicated of itself, the same rule in some way applies, inasmuch as the intellect treats as the *suppositum* what it places in the subject; and what it places in the predicate it treats as the nature of the form existing in the *suppositum*; according to the saying that *predicates are to be taken formally, and subjects materially*. (Sed et in propositionibus in quibus idem praedicatur de seipso, hoc aliquomodo invenitur; in quantum intellectus id quod ponit ex parte subiecti, trahit ad partem suppositi, quod vero ponit ex parte praedicati, trahit ad naturam formae in supposito existentis: secundum quod dicitur quod *praedicata tenentur formaliter et subiecta materialiter*.)

This diversity of function which is found in every proposition, will be the object of the following section. Let us take note of the conclusion of the whole exposition:

To this diversity in idea corresponds the plurality of predicate and subject, while the intellect signifies the identity of the thing by the composition itself. (Huic vero diversitati quae est secundum rationem, respondet pluralitas praedicati et subiecti; identitatem vero rei significat intellectus per ipsam compositionem.)

The judgment affirms the identity of subject and predicate as much as it does their diversity; it says that the two diverse *rationes* which determine the subject and the predicate meet in the same subject. And in this way alone is the composition a "mark of identity."

In judgments on the attributes of God, the identity is naturally more profound; then it is one and the same reality which corresponds to the diverse *rationes*, and our mind knows this when it affirms these propositions:

Nevertheless, although it [our intellect] understands Him under different conceptions, it knows that one and the same simple reality corresponds to its conceptions. (Quamvis intelligat ipsum sub diversis conceptionibus cognoscit tamen quod omnibus suis conceptionibus respondet una et eadem res simpliciter.)

This is no reason for thinking that the diverse conceptions are synonymous; but there is no need of insisting on this here.¹

In other cases, the duality of subject and predicate indicates a diversity of *rationes* which may be really distinct; but still their composition indicates some identity, it remains a mark (or a "sign," as we shall be told) of identity.

This fact seems to have been proposed as an objection against the thesis that man knows "by joining and dividing" (*componendo et dividendo*). If what is signified by the subject and predicate is really identical, how can an affirmative proposition ever be true? For real identity, being a simplicity, excludes real composition, whereas the proposition would affirm composition. In fact, where St. Thomas defends the thesis that man knows "by putting together and separating" (*Sum. theol.*, I, q. 85, a. 5), he proposes this objection (obj. 3). He takes occasion from it to explain his thesis on the identity and the composition in the proposition.² The answer to the objection tells us that in any case the material things, whose "quiddity" is the proper object of the human intellect, have a real composition of matter and form, of subject and accident. And it is to this composition that, in our knowledge, the composition of subject and predicate exactly corresponds. But the similarity in composition is coupled with a difference in the mode of composition of the proposition:

Nevertheless the composition of the intellect differs from the composition of things; for in the latter the things are diverse, whereas the composition of the intellect is a *sign of the identity* of the components. For the above composition of the intellect does not imply that man and whiteness are identical; but the assertion, "The man is white," means that the man is something having whiteness; and the subject, which is a man, is identified with a subject having whiteness . . . and according to this kind of identity our intellect predicates the composition of one thing with another. (Tamen differt compositio intellectus a compositione rei; nam ea quae componuntur in re sunt diversa; compositio autem intellectus est *signum identitatis* eorum quae componuntur. Non enim intellectus sic componit, ut dicat quod homo est albedo; sed dicit quod homo est albus, idest habens albedinem; idem autem est subiecto quod est homo et quod est habens albedinem . . . et secundum hanc identitatis rationem, intellectus noster unum componit alteri praedicando.)

Here, then, is the difference in "mode": the components of the material thing are really distinct one from the other. In the material thing there is a composition between a substrate which is "man" and the form which is "whiteness." The composition of the subject and the predicate of a proposition is, on the contrary, a "sign of identity" of two things appre-

hended, even though not a sign of a complete identity: "The subject, which is a man, is identified with a subject having whiteness." And once again it is manifest that it is not the judgment which produces the composition between the whiteness and its subject which was already known as a man, for this composition had already been made in the apprehension. It is the task of the judgment to affirm this composition, and it does so by identifying the composite white subject with the composite human subject; it is a way of saying, "So it is," because the human mind already knew the man as existing. We shall see immediately that this is so.

The argument which St. Thomas uses to prove the thesis that it is not the judgment which, in the mind, produces the composition between a matter and its form, is very simple. It appeals to what we *understand* mentally when we say, "A man is white" (*homo est albus*). This appeal makes us reject immediately the expression, "A man is whiteness" (*homo est albedo*). It is not a purely grammatical affair, although the grammatical formula (the *verbum exterius*) awakens immediately the understanding of what, in the mind, corresponds to this expression (the *verbum interius*). Rather, the two expressions awaken two different thoughts. And thus this appeal to our mind is decisive, revealing two things: first, that in the judgment we understand that we affirm the above-mentioned identity; and, secondly, that we know that "man" is not, under any aspect, identical with "whiteness" but is united with it, as a matter with its form. But we cannot apprehend this form except "as concretized" (*in concretione*), as we read in *Summa theologiae*, I, q. 13, a. 1, ad 2.³

We find, then, that the proposition affirms a material identity of subject and predicate which, of itself, is a *purely* material identity. It affirms also the distinction of notes (*diversitas rationum*) which determine the same substrate as subject, or as predicate, and which therefore meet in the same substrate.

In all this we have received an explanation of the correspondence between a composite thing and the composition of the proposition, but we do not yet know why we think synthetically (*componendo*). St. Thomas knew very well that the two compositions are not necessarily coupled, and that the first composition does not necessarily involve the second. His philosophy of the angelic spirits frequently insists that they do not know, as we do, "by joining and dividing" (*componendo et dividendo*) nor by "discursive reasoning" (*ratiocinando*; *Sum. theol.*, I, q. 58, a. 4); nevertheless, the angel knows composite things, he knows also our composition and division and our syllogistic reasoning; but he knows all this in a simple

idea (*intelligit omnia simpliciter*). The fact that we know the composition of material things, and that the composition of the judgment corresponds, in its own fashion, to this composition, as we learned from the passage of *Summa theologica*, I, q. 85, a. 5, ad 3, does not then explain the composition *in* the proposition.

But this explanation had been given in the body of the article referred to. The starting point of the explanation is this: the human mind, in its knowledge, passes from potency to act, from an imperfect knowledge to a more perfect knowledge; and for this reason, in progressing, it has to join the new knowledge which it discovers to the knowledge it already has:

The human intellect does not acquire perfect knowledge of a thing by the first act of apprehension; but it first apprehends something about its object, such as its quiddity, and this is its first and proper object; and then it understands the properties, accidents, and the various relations of the essence. Thus it necessarily relates one thing with another by composition or division; and from one composition and division it proceeds to another, which is the process of reasoning. (*Intellectus humanus non statim in prima apprehensione capit perfectam rei cognitionem; sed primo apprehendit aliquid de ipsa, puta quidditatem ipsius rei, quae est primum et proprium obiectum intellectus, et deinde intelligit proprietates et accidentia et habitudines circumstantes rei essentiam. Et secundum hoc necesse habet unum apprehensum alii componere vel dividere; et ex una compositione vel divisione in aliam procedere, quod est ratiocinari.*)

There then follows a description of the opposition between this manner of knowing and that of the pure spirits (God and the angels), who

. . . know, indeed, composition, division, and reasoning, not by the process itself of joining, dividing, and reasoning, but by understanding the simple essence. (. . . cognoscunt quidem compositionem et divisionem et ratiocinationem, non componendo et dividendo et ratiocinando, sed per intellectum simplicis quidditatis.)

In contrast with the angelic intellect the human intellect has, in its first apprehension of a thing, a very limited knowledge of what the thing is, but it successively enlarges this knowledge. The first result of its activity is here called the "quiddity of the thing"; certainly this does not mean that we begin by a complete apprehension of the essence of the thing, even when there is question of a material thing. The position of St. Thomas is well known; namely, that the human mind only rarely and through much labor comes to know the essence of things.⁴

When, therefore, we are here told that the very quiddity of the thing is that which is first known, this must be understood as meaning that the first known determination of the thing is used by us to designate the essence as yet poorly known, and to distinguish it from other things. And it is in this object, so designated, that we discover little by little other properties and relations. Then we have to "join" these new data with what we already know. Both are known as diverse determinations (*rationes diversae*) of the same object. We discover the two forms, not in the abstract but in the concrete, the second in the same substrate in which we had already discovered—and of which we had affirmed—the first. And this is why the second form is united in the concrete with the first. This cannot be done otherwise than in declaring the subject of the two forms to be identical. This is why the modality of the composition of the proposition is different from the modality of the composition of the thing. The first is an affirmation of material identity of two concrete forms, the second is the determination of the subject of the first form by a second. To this second composition there corresponds—but this time with the same modality—the preceding composition of the intellect, that of the apprehension or data. The first composition, on the contrary, that which is expressed by the copula of the proposition, the composition "by way of affirmation" does not differ from the "So it is" which we know as the essence of the judgment.⁵ For this affirmation was preceded by another affirmation, that of the *subject* of the new proposition as a "thing" with one or other determination. It is in this thing that a new concrete form is discovered; then the material identification of this new form with the thing already affirmed is completely the same as the affirmation, "So it is." We are thus reminded of the text of *Summa theologica*, I, q. 16, a. 2:

When, however, the intellect judges that a thing corresponds to the form which it apprehends about that thing, then it first knows and expresses truth. This it does by joining and dividing: for in every proposition it either applies to, or removes from, the thing signified by the subject some form signified by the predicate. (Quando [intellectus] iudicat rem ita se habere sicut est forma quam de re apprehendit, tunc primo cognoscit et dicit verum. Et hoc facit componendo et dividendo: nam in omni propositione aliquam formam significatam per praedicatum, vel applicat alicui rei significatae per subiectum, vel removet ab ea.)

This "thing" is the thing in itself, the thing which *exists* (this is attested by the whole article). The mind knew this before the judgment which it will enunciate; but now it discovers a new aspect, a concrete form of the

thing (*quam de re apprehendit*); now it says, "The thing is so" (*rem ita se habere*).

This shows again a diversity of *function* between the subject and the predicate of the proposition, a diversity which persists despite material identity; the subject takes the place of the thing or substrate; the predicate, that of the form. This diversity we shall study in the following section.

3. "THE SUBJECT IS TAKEN MATERIALLY, THE PREDICATE FORMALLY"

Already more than once we have met both this diversity of function between the subject and predicate and the formula that expresses it. There is indeed a double diversity between the subject and the predicate. In the first place they ordinarily manifest a diversity of content (*diversitas rationum*), the same *suppositum* is determined by different forms. We say, "ordinarily," for the so-called identity-propositions, like "Man is man," are the only ones that form an exception. But besides—and this holds true for every proposition—we find a diversity of function, for: "The subject is taken materially, the predicate formally" (*subiectum tenetur materialiter, praedicatum formaliter*). This formula is explained in *Summa theologiae*, III, q. 16, a. 7, ad 4:

A term placed in the subject is taken materially, that is, it stands for the *suppositum*; placed in the predicate it is taken formally, that is, it stands for the nature signified.⁶ (Terminus in subiecto positus tenetur materialiter, idest pro supposito; positus vero in praedicato tenetur formaliter, idest, pro natura significata.)

Observe that there is question directly of the exterior word, of the *term* used as the subject or as predicate; or there is question primarily of the proposition, and then of the judgment. That is why it is not said, "It is a matter or a form," but "It stands for the matter." The phrase "stands for" (*tenetur*) is replaced sometimes by the familiar logical term, *supponit pro*. And once (*In Sent.*, I, D. 4, q. 2, a. 2) it is said that the predicate has the function of a form (*cum praedicatum se habeat loco formae*). Sometimes the relation between the two terms is compared with that between a matter and its form (*In Periherm.*, I, lect. 8, n. 9): "The predicate is to the subject as form is to matter" (*praedicatum comparatur ad subiectum ut forma ad materiam*). We have also met the expression, "The subject is the material part, the predicate is the formal part, of the proposition" (*In Periherm.*, I, lect. 5, n. 3; lect. 8, n. 9; lect. 10, nn. 10 and

23). This expression is perfectly applicable to the elements of the objective structure, both in the representation and in the thing.

The intention is clear. Suppose we pronounce the judgment, "Man is white." The two terms, if taken separately, have each a formal sense,⁷ each indicates a subject determined by a form. But each term can be used in such wise that it denotes especially the subject, or in such wise that it denotes especially the determination or quality. In the first case it stands for (*supponit pro*) this subject; in the second case it fulfills the function of this form. This takes place naturally, one might say automatically, if the terms are used as the subject and predicate, respectively, of a proposition.

Hence, an analysis of the structure of the proposition and of its causes gives a triple result. First, the composition as expressed by the proposition is meant to affirm a material identity. This manner of expressing an identity by composition comes from the nature of the human mind which, in its cognition of one and the same thing, progresses from one affirmation to another. The second affirmation is then expressed by a proposition in which the predicate is the *new* aspect which we discover in a subject already partially known. We discover the new aspect in a representation, the disposition of which has this new aspect as its form. Then, secondly, because it is precisely the predicate that is newly known and is what we principally want to affirm in relation to a subject already known, we join it, as a "verb" to the subject as to its matter; this is why it will be the "formal part," why it will be called the "principal part" (*In Periherm.*, I, lect. 5, n. 3; and lect. 8, n. 9):

Since the verb implies that composition which makes speech something signifying truth or falsity, it seemed more fitting to have the verb as the *formal* part of speech rather than the noun, which is the *material* and subjective part of speech.⁸ . . . The predicate is the principal part of the enunciation, since it is the formal and complementary part of the enunciation. (*Quia verbum importat compositionem, in qua perficitur oratio verum vel falsum significans, maiorem convenientiam videbatur verbum habere cum oratione, quasi pars formalis ipsius, quam nomen, quod est quaedam pars materialis et subiectiva orationis. . . . Praedicatum autem est pars principalis enunciationis, eo quod est pars formalis et completiva ipsius.*)

Finally, in attributing this form to a subject already known as real, our mind by that very fact affirms this new relation as real, "So it is"; the proposition expresses the judgment and this judgment "is concerned with existence."

The copula "is," which is a mark of predication (*In Periherm.*, II, lect.

2, n. 3), has, then, simultaneously and indivisibly, a triple sense. It affirms the material identity of the things which are represented by the subject and the predicate; it affirms the relation of form to matter which the content of the predicate has towards the subject indicated by its proper content; but, above all, it affirms the existence of this relation. This last point remains the principal function of the proposition and of the judgment; but, because the existence which it affirms arises ordinarily from a form, it affirms at the same time this form, and with it the subject which it determines. In the affirmation of this *esse* we recognize the judgment, and we find its function is to be concerned with existence. In the preceding representation this composition of a form with its matter was already present; it had its existence in the intellect, an intentional existence, but it had not yet been affirmed; after the reflection there follows the judgment, "So it is actually." This is the principal but not unique sense of the "is" of the proposition. It is not its unique sense, for it implies (*consignificat*) composition, since the subject was known beforehand; it implies the relation of matter to its form because this form gives to this matter the existence which is newly recognized; and thus it implies material identity.

We find all this expressed by a remarkable text of *In Perihermeneias*, I, lect. 5, n. 22. There, and in the preceding numbers, the question deals with a difficult passage of Aristotle—difficult by reason of the reading of the Greek manuscripts. St. Thomas knows of the Greek reading and describes it in opposition to the Latin translation which he has before him, giving a commentary on both readings.⁹ Here we are interested only in St. Thomas's own theory, where he explains the words *consignificat quandam compositionem*:

He says that this word *is* cosignifies composition, because it does not signify it principally, but as a consequence; for it first signifies what is absolutely contained in our understanding as an actuality: *is*, simply speaking, signifies *to be in act*, and hence it signifies after the manner of a verb. Since, however, the actuality which is principally signified by this word *is*, is commonly the actuality of every form, whether it be a substantial or accidental act, it follows that when we want to signify any form or act actually to be in some subject, we signify this by this word *is*, either simply or with some qualification: simply, that is, in regard to present tense; with some qualification, that is, in regard to other tenses. Hence, this word *is* signifies composition. (Ideo autem dicit quod hoc verbum *Est* consignificat compositionem, quia non eam principaliter significat, sed ex consequenti: significat enim primo illud quod cadit in intellectu per modum actualitatis absolute: Est, simpliciter dictum, significat *in actu*

esse, et ideo significat per modum verbi. Quia vero actualitas, quam principaliter significat hoc verbum, *Est*, est communiter actualitas omnis formae, vel actus substantialis vel accidentalis, inde est quod cum volumus significare quamcumque formam vel actum actualiter inesse alicui subiecto, significamus illud per hoc verbum, *Est*, vel *simpliciter* vel *secundum quid*: simpliciter quidem, secundum praesens tempus; secundum quid autem secundum alia tempora. Et ideo ex consequenti hoc verbum, *Est*, significat compositionem.)

Thus the copula *is* of the proposition, and hence of the judgment, affirms primarily and principally (*primo, principaliter*) the "actuality," the *esse* and, as a consequence, also the composition of a matter with a form. The material identity is not mentioned, but is evidently supposed.

4. ADJUSTMENTS AND COMPLEMENTARY DETAILS

A. *Generalities.* The structure of the proposition which expresses the material identity of the subject and predicate and their relation as matter and form is, from one point of view, a consequence of the nature of the human mind which has to advance "by joining" (*componendo*). From another point of view it is a reflection of the objective structure, of the relation of the thing's components, both in the apprehension and in the thing. This last point was explained to us when the objective structure (*dispositio rei*) was called the cause, or the foundation, of the corresponding disposition in the mind which pronounces a true judgment (*In Met.*, IX, lect. 11). There it was said of the proposition, "predicates stand for forms" (n. 1898), and that was why there was demanded in the thing as "cause" an analogous composition of matter and form, of subject and accident, or at least of something comparable to matter and form.

But we learned something more. Three kinds of composition were there distinguished: necessary, impossible, contingent. The same diversity had been described also as necessary or natural matter, remote or impossible matter, and contingent matter (*In Periherm.*, I, lect. 13, n. 3; *Sum. theol.*, III, q. 16, a. 1, ad 1). Now, we have not yet found this distinction in considering the structure of the proposition. Of every affirmative proposition, and of every objective structure affirmed in a proposition, it must be said—and said in the same way for all the three kinds of composition—that there is a material identity, and that the subject and the predicate are as matter and form. Our exposition of the structure of the proposition needs then to be complemented. St. Thomas does this for us abundantly.

We already know that the three kinds of "matter" which are distin-

guished in the *In Perihermeneias* and elsewhere are properly three species of relation between the subject and the predicate, notably a relation such that the content of the subject, and hence the form which determines the subject, is of decisive importance. This is why the text of the *Summa theologica* previously cited, states the problem thus: whether the *forms* of the subject and the predicate, in virtue of their meaning, can be joined in the same *suppositum*.

Now when one considers the judgment *only* as an affirmation of the material identity of the subject and predicate, then the affirmed nexus is purely material; that is, one says only that the two forms signified by the subject and the predicate meet (perhaps accidentally) in the same *suppositum*. But in the "necessary matter" there is more: there, one of the forms is *demand*ed by the other. In the *suppositum* which has the first form (that of the subject), the other (that of the predicate) must of necessity be present. Here there is more than a material connection, there is found what we have called a formal nexus.¹⁰ For the negative judgment an analogous conclusion must be drawn. What is necessarily *demand*ed in "necessary matter" is necessarily excluded in "impossible matter."

When we next consider the relation between the subject and the predicate only as a relation of a matter to its form, the same limitation subsists. For then the content of the subject serves *only to designate* the subject from among others, it stands purely as matter. But in "necessary matter" the content of the subject (and hence the form which the subject signifies) has a much more important function; there it *demand*s, it causes, the form of the predicate to be in the same *suppositum*, and it makes *intelligible* the presence of this second form. There is here a *direct* nexus between the contents or forms themselves, and not just a nexus due to the common *suppositum*. The identity of the substrate, or material identity, is something posterior, following by reason of the connection of the forms. In a contingent truth, on the contrary, the identity of subject or substrate is prior, and the connection of the forms only a consequence. All that we have seen relative to the "nature considered absolutely" and to the order of priority and posteriority which flows from it, has its application here. And since the judgment principally affirms this nexus and follows upon a reflection on the nexus, there will be an enormous diversity, even from the point of view of the theory of knowledge, between judgments in "necessary matter" and judgments in "contingent matter."

But then it must be said that in judgments in "necessary matter" and in "impossible matter" we must hold that, although the subject "is taken

materially," we must also add that under a certain aspect the subject is also taken formally. For its form has an influence on the nexus and this influence is known to us and is preponderant. We must correct or rather readjust the developments we have seen above. These adjustments regard judgments of the highest importance, the necessary (or *per se*) judgments (*In Periherm.*, *loc. cit.*), that is, scientific judgments. We shall have to devote to them many pages, for the teaching of St. Thomas on this point is particularly rich. We shall examine them in the following chapter. For the moment we shall only note that there is always question of a nexus between the subject and the predicate, the importance of which we have more than once emphasized. The purely sensible data which are the origin of the intellectual data evidently contain this nexus purely as a material nexus, one of fact and one which could be contingent. In the caesura between the apprehension and the judgment, at the time of the reflection leading to the judgment, the mind has to make the important discovery of the necessity of this nexus if it is a formal one. This can be done if an abstraction is possible for us in this matter.

B. *The Function of the Predicate.* The adjustment to which we have just called attention refers to the first part of the formula, "The subject is taken materially," but the second part, "The predicate is taken formally," also calls for a correction, or rather an adjustment. The thesis as such remains true; but when there is question of a composite predicate it is not permissible to apply the formula separately to the elements of this predicate. For it is possible that, among these elements, there may be at least one of which we must say that it is taken materially. We shall be able to clarify this adjustment at once in a few pages.

Here is a clear formulation of this correction, taken from *In Sententias*, III, D. 1, q. 2, a. 5, ad 5:

The term placed in the predicate is to be taken formally but this is not necessarily true of the term which is the object of some verb; hence . . . when . . . we say, "The Son of God assumed man," the term "man" is not taken formally; hence it rather stands for the suppositum than for the nature of the suppositum. (Terminus in praedicato positus tenetur formaliter, quod non est necessarium de termino ad quem terminatur actus alicuius verbi; et ideo . . . cum . . . dicitur . . . "Filius Dei assumpsit hominem" ly hominem non tenetur formaliter; unde magis stat pro supposito quam pro natura suppositi.)

The application has a theological bearing, but for our purpose it is only the principle that is important; namely, that the predicate retains its

formal function, but if it contains a direct complement and if the term which designates this complement has a material function, then like the subject "it rather stands for the suppositum."

This property of the structure of the proposition has important consequences as well for the value of the judgment as for formal logic. St. Thomas did not neglect these consequences. In regard to the value of the judgment, the necessity or the contingency of a truth depends only on the formal part, not on the material part, of the proposition. We read in *De veritate*, q. 2, a. 12, ad 7:

The truth of a proposition does not vary as to necessity or contingency by reason of what is materially placed in speech, but only by reason of the principal composition on which rests the truth of the proposition. (*Veritas propositionis non variatur per necessitatem et contingentiam ex eo quod materialiter in locutione ponitur, sed solum ex principali compositione in qua fundatur veritas propositionis.*)

The formal element is once again the nexus, and if there are many, the principal nexus. In the examples which follow, it is immediately evident which are the elements that exercise the formal function and which are those that function only as matter:

Hence there is the same aspect of necessity and contingency in both of these statements: "I think that man is an animal," and, "I think that Peter is running." (*unde eadem ratio necessitatis et contingentiae est in utroque istarum: "ego cogito hominem esse animal," et "ego cogito Petrum currere."*)

The two propositions have the same character which depends uniquely on the main composition, which is situated in the "I think," and this is contingent. This character does not change by reason of the circumstance that in the first proposition the material element, "man is an animal," is a necessary truth.

And inversely:

Since the principal act which is signified in this antecedent, "God knows that Peter is reading," is necessary, it follows that however contingent is that which is materially placed there, the antecedent is not prevented by that from being necessary. (*Et ideo, cum actus principalis qui significatur in hoc antecedente, "Deus scit Petrum legere," sit necessarius, quantumcumque illud quod materialiter ponitur, sit contingens, ex hoc non impeditur quin antecedens praedictum sit necessarium.*)

The principal nexus of this proposition is situated in "God knows," and this nexus is necessary; that is why the proposition remains necessary even though the matter of this knowledge is the contingent fact that Peter is reading.

The same theory is found in *Summa theologiae*, I, q. 14, a. 13, with analogous examples, to explain the difference between the material and formal element of a predicate:

When we say, "God knew this contingent to be future," *contingent* is used here only as the matter of the verb, and not as the chief part of the proposition. Hence its contingency or necessity has no reference to the necessity or contingency of the proposition, or to its being true or false. (Cum dicitur, "Deus scivit esse futurum hoc contingens," "contingens" non ponitur ibi nisi ut materia verbi, et non sicut principalis pars propositionis; unde contingentia eius vel necessitas nihil refert ad hoc quod propositio sit necessaria vel contingens, vera vel falsa.)

The last words extend the thesis to truth and falsity also; but the further clarification teaches us to be prudent in applying it. We read:

For it may be just as true that I said a man is an ass, as that I said Socrates runs, or God exists; and the same applies to necessary and contingent. (Ita enim potest esse verum me dixisse hominem esse asinum, sicut me dixisse Socratem currere, vel Deum esse; et eadem ratio est de necessario et contingenti.)

St. Thomas says very correctly, "It may be true"; for the material element evidently has its influence on the truth of the proposition. If I have not said that, then the proposition is not true. But the truth or falsity of what I said has no influence on the truth of the composite proposition.

C. Logical Consequences. The consequences of the Thomist theory of the material function of certain elements of the predicate are, therefore, important for the value and meaning of such propositions. Their importance is still greater in formal logic. St. Thomas indicates these consequences in a passage of the *In Perihermeneias* (I, lect. 10, nn. 12-23). To begin with, he explains the difference of quantity between different propositions. The term which is the subject is often a universal; but it can be taken either universally or particularly ("indefinitely"), according as the predicate is attributed to the subject "by reason of the very nature of the universal" (*ratione ipsius naturae universalis*), or "by reason of the

nature of the particular" (*ratione particularis*). In affirmative propositions, the first is designated by the word, "every," the second by "some." In n. 23 it is explained that this same operation cannot be applied to the universal which functions as the predicate.

We are given two reasons for this. The first is that this manner of acting is contrary to the nature of the predicate, because the predicate is, "as it were, the formal part of the proposition" (*quasi pars formalis enunciationis*); the subject admits it, because it is "the material part." For the qualification of the universal, such as is expressed by the terms, "every" and "some," indicates explicitly its relation to the singular cases, and hence to a material element:

When a universal is used universally, the universal itself is taken according to the relation it has to the singulars which it contains under it; so when a universal is used particularly it is taken according to the relation it has to some one of the inferiors contained under it; and thus both pertain to the material determination of the universal. (Cum aliquid universale profertur universaliter, ipsum universale sumitur secundum habitudinem quam habet ad singularia, quae sub se continet; sicut et quando universale profertur particulariter, sumitur secundum habitudinem quam habet ad aliquod contentorum sub se; et sic utrumque pertinet ad materialem determinationem universalis.)

For this reason the subject, having a material function, can be quantified; the predicate allows no quantification because it has a formal function. In other words, it is for this reason that each one of the inferiors included in the subject (as universal) can be chosen arbitrarily; if this choice is fixed, then the choice of an inferior in the predicate is no longer permitted. This universal having a formal function will, as every form in a subject, be individuated by its subject; and this one has already been chosen in the subject of the proposition; it is this subject which determines the individuation of the predicate.

The same explanation of the possibility of this quantification of the subject, and the impossibility of the quantification of the predicate is found described in another manner, but very neatly, in *In Sententias*, I, D. 21, q. 2, a. 1, ad 1:

This word *every*, by reason of its distributive sense, implies a certain division and multiplication of the subject by reason of its inferiors. Hence it is not rightly added to those subjects under which we cannot understand a multitude of suppositums, since they are singular terms. And hence also for this same

reason it is not placed with the predicate, since the predicate is taken formally and suppositums are united, not distinguished, in a common form. (Per hanc dictionem, "omnis," ratione distributionis, importatur quaedam divisio subiecti et multiplicatio ratione contentorum. Unde incongrue additur his sub quibus non est accipere aliquam multitudinem suppositorum, ut terminis singularibus. Et propter hoc etiam ex parte praedicati poni non potest, quia praedicatum sumitur formaliter, et in forma communi uniuntur supposita, non distinguuntur.)

This is a reason why, generally speaking, it is not proper to quantify the predicate. This quantification can lead, notably if applied to universal affirmative propositions, to absurd results. Thus "Every man is every animal" is an impossible proposition; even if the predicate has the same extension as the subject; that is, if the proposition is simply convertible (for example, "Man is a being capable of laughing"), still the quantification of the predicate leads to an absurdity,

for it would be necessary that each man be all animals or all the beings capable of laughing, which is repugnant to the nature of the singular contained under the universal. (oporteret enim quod quilibet unus homo esset animalia omnia, aut omnia risibilia; quae repugnant rationi singularis quod accipitur sub universale.)

This is the famous "quantification of the predicate" as Hamilton wanted to introduce it in the last century. It had already found its refutation in St. Thomas, and we need not treat of it more extensively. But we must glance at another more important question. If the material function of the subject permits a quantification, then the material element of the predicate—if it has one—should also admit it. St. Thomas fully admits this consequence. He continues:

Nor is it an example [against this doctrine] if we say that the following is true, "Every man is capable of all training"; for "training" is not predicated of man, but "capable of training," and it would not be true to say that every man is everything capable of training. (Nec est instantia si dicatur quod haec est vera, "omnis homo est omnis disciplinae susceptivus"; "disciplina" enim praedicatur de homine, sed "susceptivum disciplinae." Repugnaret autem veritati si diceretur, "omnis homo est omne susceptivum disciplinae.")

It is permitted here to introduce a quantification *in* the predicate. The reason is clear, for the predicate retains its formal function; hence the impossibility of the final formula. But it contains an element which has a material function: the knowledge for which man has capabilities. In the

first example cited by us, this material element was the object of an action (*assumpsit*); here it is the object of a power or habit.

Both of these propositions are examples of relation judgments which modern logistics treats with such predilection in its logic of relations. The subject of the proposition is the first term, the object of the action is the second term, the action itself is the relation which is affirmed by the proposition.

We are often told, as a reproach, that classical logic did not know or that it totally neglected relations, that it was uniquely a predicative logic. Certainly there is no need to prove that Scholasticism did not neglect *relations*. But did classical *logic* know nothing of relation judgments; did it know only predicative judgments? Even this is not true. The truth is that classical logic looked upon the relation—between two *terms*, as modern logic would say; or of a *subject* to a *term*, as the classical writer would say—as inherent in the subject (the *esse in*, in opposition to the *esse ad*), hence as a predicate; and as such, the relation has the properties of the predicate and, therefore, a formal function in the proposition. Let it be said in passing that for asymmetrical relations this manner of understanding the relation seems to us to be better than, and for the symmetrical relations it does not seem to us inferior to, the modern manner.

But the modern way of considering it makes clearer the circumstance that the second term (*the* term according to Scholasticism) does not have a formal function, but a material one, just as the first term, the subject, does. But, as we have just said, the classical opinion does not exclude this method. St. Thomas knew this property of the judgment and of the structure of the proposition. He knew it when, early in life, he was writing his commentary on the *Sentences*. He there admits the quantification of the material element of the predicate, as of the subject. But it remains true that classical logic did not develop this logic of relations, and this development remains the great merit of logistics. But it is a development of an idea already familiar to St. Thomas.

It may be permitted us here to indicate summarily how the quantification of judgments of relation leads to a system of propositions more rich than the system of predicative propositions of classical logic. In classical logic we find (neglecting singular propositions) two quantified affirmative propositions, the universal proposition symbolized by the letter *a*, and the particular symbolized by *i*. In a proposition of (binary) relation, both the subject and the term of the relation can be quantified, the one independently of the other. At first sight, we would seem then to have four

propositions: one that is doubly universal, one that is doubly particular, and two that are mixed (universal-particular, and particular-universal). In reality there will be six.

Take, for example, the proposition of St. Thomas, "Man has an aptitude for science."¹¹ The doubly universal proposition will be, "Every man has an aptitude for every science"; the doubly particular proposition will be, "Some man has an aptitude for some science" (or "There is at least one man who has an aptitude for some science, and at least one science for which that man has the aptitude"). But the case of a *universal* subject and a *particular* term leads to *two* different propositions. The relation, "aptitude for," quantified in such a manner, exists between "every man" and "some, at least one, science." This can mean: (A) "For every man there is some science which he can learn" (it is not necessary that it be the same science: one man can have an aptitude for one science, some other man for some other science). The meaning is then that no one is so stupid that he cannot learn one or another science. But the meaning could also be (B): "There is at least one science for which every man has the aptitude" (that is, "There is at least one science so easy that every man can learn it"). The two propositions (A) and (B) are not equipollent; the reader will see without difficulty that (B) implies (A), but not inversely; (A) can be true and (B) false, but not inversely.

The same duality is had when the subject is taken particularly, and the term universally, hence when the relation "aptitude for" exists in at least one man, and regards every science. A first proposition, then, in such a case, is (C): "There is some (at least one) man who has an aptitude for every science." The sense is then that there is a man so intelligent that he can learn every science. But the same distribution of quantity is found in another proposition (D): "For every science there is some (at least one) man who has the aptitude for that science"; that is, no science is so difficult that no man can learn it. The reader will see without difficulty that these propositions are not equipollent; (C) implies (D), but not inversely; and (D) can be true and (C) false, but not inversely.

It is easily seen that the doubly universal proposition and the doubly particular proposition have only one meaning. Whereas predicative logic knows only two affirmative propositions, *a* and *i*, the logic of relations has, for two-term relations, six propositions. If we indicate them by designating the subject by the symbol 1 and the term by the symbol 2, and if we add to these symbols the letter *a* or *i*, according to their quantification, just as in classical logic, then the six propositions, in the order of their

discovery, can be represented as follows: $(1a, 2a)$; $(1i, 2i)$; $(1a, 2i)$; $(2i, 1a)$; $(1i, 2a)$; $(2a, 1i)$.

In this series $(2i, 1a)$ implies $(1a, 2i)$, but not inversely; and $(1i, 2a)$ implies $(2a, 1i)$, but not inversely.

Besides these six quantified affirmative propositions, there are six negative, which are, respectively, the purely contradictory opposites of the corresponding affirmative propositions. And, therefore, we count twelve quantified propositions for two-term relations, whereas the purely predicative logic has only four (a, e, i, o). Modern logic considers, also, relations of more than two terms; these are found in mathematics. A relation of three terms leads to such propositions as: "A gives B to C." In such a proposition A, B, and C can be quantified independently of one another.

Logistics becomes necessary if we are to find the path in this maze of possibilities, their connections, and their oppositions. We have introduced above a rather awkward symbolism to group the propositions in the case of a relation of two members. Logistics uses much more perfect symbols and gives rules which govern operations with these symbols, rules which permit, securely and without great difficulty, classifications and deductions. But one can see that all this can be joined to the classical logic on condition that we take into account the material function of the elements of the predicate.

The thesis of the material identity of the subject and predicate also has its application in formal logic. For it permits the transition from one proposition, or group of propositions, to another. When we have a proposition with subject A and predicate B, we know that these two are materially identical. The same holds for another proposition with subject B and predicate C. If the circumstances are such that the substrate of B is the same in both cases, it will likewise be the substrate of the determinations A and C; these two can then be the subject and predicate of another proposition which is the expression of material identity. It is the task of formal logic to examine into the conditions which the given propositions must satisfy, if one is to conclude with complete security.

The principle which logicians apply, "If two things are identical with the same third, they are identical with each other," has been called the principle of identity. It is also called, and with greater accuracy, the principle of compared identity. Many authors consider it as the fundamental principle of formal syllogistics. In our opinion, this has not been to the benefit of logic. It does not, of course, lead necessarily to false conclusions;

of itself it cannot do so, since it is true. Nevertheless, there have been logicians who have allowed themselves to be led to draw incorrect applications from it. But even if this were not the case we should still have difficulties.

One of the difficulties is this, that material identity is the only presupposition of the principle logicians invoke. Hence, they make material considerations their preoccupation. This leads to the predominance of groups of individuals and hence to considerations of extension rather than of comprehension. The opinion of Poincaré, that the syllogism reduces itself to this, that two soldiers who belong to the same regiment, belong also to the same brigade, and hence to the same division, is not only the extreme consequence of the pure consideration of extension, but also shows the insufficiency of this point of view. This can lead to incorrect consequences.¹² If that were the whole theory of the syllogism, one could rightly ask what good is a theory which teaches us only that. Such futility is the natural consequence of the fact that the principle invoked makes use only of the material identity of the subject and predicate of the proposition. Such a thesis gives only a very imperfect picture of the profound structure of the proposition. This is especially true of a certain type of proposition of the greatest importance, the proposition in which the material identity comes from the formal structure, from the formal nexus, from the *direct* connection of the forms or *rationes* which determine the subject and the predicate. When one takes into consideration this deeper structure, one sees that a form (*B*) is necessarily due to the form (*A*), and a third (*C*) is due to the second (*B*), implying, therefore, that (*C*) is ultimately due to (*A*).

Obviously, the three forms are in the same subject; but that is of no more importance. Formal considerations will furnish a better principle for the syllogism of scientific value, the syllogism which expresses the true progressive process (*cheminement*) of human thought. Considerations of extension certainly have their importance; they are, in a certain sense, even necessary for some easy logical developments; but considerations of comprehension are more important and more profound.

We cannot here explain how the purely extensional consideration can lead, not only to theories of lesser value, but even to erroneous conclusions,¹³ for it is now time to come to the study of the formal nexus, that is to say, to the structure of necessary propositions, the "*per se* propositions."

CHAPTER IV

The Structure of the *Per Se* Proposition

THE SUBJECT of a proposition has a material function and stands for the suppositum (*tenetur materialiter; tenetur pro supposito*); the predicate has, on the contrary, the function of a form or nature (*tenetur formaliter*). This second rule, as we have seen, admits of some exceptions; that is to say, it is not applicable to all the elements of the predicate; but we shall also see, in passing, some cases where the predicate, taken as a whole, approaches a material function.

The rule concerning the subject is universally valid, but there are some cases where the subject, by reason of its content (*ratio*), functions also as a form, although without losing its material function. This is the case with the *per se* propositions. In this case, there is not only a nexus of material identity, as in every proposition, a simple and accidental encounter of the form of the subject and that of the predicate in the same substrate; but rather, in the *per se* proposition the two forms themselves are connected. The form of the subject implies necessarily that of the predicate. The proposition thus possesses a formal nexus, and this is why it is called a "*per se* proposition."

1. CONCERNING THE PHRASE *Per Se*

To begin with, let us examine this *per se*. Above all, we must not, as is sometimes done, confuse it with the frequently used expression "self-evident" (*notum per se*). The *per se* proposition and the self-evident proposition can sometimes be coupled together, but not always; for not every truth that is formulated in a *per se* proposition is self-evident (*notum per se*); and inversely, not everything which is self-evident corresponds to a *per se* proposition. The "self-evident" (*notum per se*) has as its contrary the "mediately known" (*notum per aliud*); whereas the *per se* of a proposition is opposed to *per accidens*. "Self-evident," then, is said of a direct cognition of the relationship between the terms, and not of

scientific knowledge strictly so-called (which is deduced, through middle terms, from self-evident first principles). Conclusions of such a demonstration are not "self-evident" (*notae per se*) but are "mediately known" (*notae per aliud*); the medium is the system of the middle terms. And yet these conclusions are *per se* propositions, since they express a connection between the subject and predicate which without being direct or immediate is nevertheless necessary.

This distinction recurs frequently in the writings of St. Thomas; for example, in *Summa theologiae*, I-II, q. 57, a. 2:

Now a truth is subject to a twofold consideration: as known in itself, and as known through another. What is known in itself has the character of a principle and is at once understood by the intellect. . . . On the other hand, a truth which is known through another is understood by the intellect not at once, but by means of reason's inquiry, and so has the character of a term. (Verum autem est dupliciter considerabile; uno modo, sicut per se notum; alio modo sicut per aliud notum. Quod autem est per se notum, se habet ut principium, et percipitur statim ab intellectu. . . . Verum autem quod est per aliud notum non statim percipitur ab intellectu, sed per inquisitionem rationis, et sic se habet in ratione termini.)

That such a conclusion of a true demonstration is nevertheless a *per se* proposition can be noted a hundred times in our author; for example, in *In Posteriora Analytica*, I, lect. 35, nn. 2 and 3:

Per se predication is proper to demonstrative science. . . . Demonstration is concerned only with what *per se* belongs to things. Such are its conclusions, and out of such is demonstration constructed. (Demonstrativae scientiae propria est praedicatio per se. . . . Demonstratio est solum circa illa, quae per se insunt rebus. Tales enim sunt eius conclusiones, et ex talibus demonstratio.)

Inversely also, not everything which is self-evident is expressed by a *per se* proposition, a proposition which affirms a necessary connection between the subject and the predicate. Although the term "self-evident" is ordinarily used of immediately known *principles*, we also call "self-evident" whatever we affirm as given by immediate simple sense perception; and rightly so, for this is known directly, without the intermediary of something else. Thus we read in *In Physica*, II, lect. 1, n. 8:

That nature exists is known *per se*, inasmuch as natural things are manifest to sense. (Naturam autem esse, est per se notum, in quantum naturalia sunt manifesta sensui.)

Now a proposition that affirms the existence of any creature is never a *per se* proposition.

The notion of a "self-evident" and the notion of a "*per se* proposition" do not then coincide. And this is clear from the meaning of the concepts: the *per se* of the proposition concerns the nature of the objective structure which is affirmed by the proposition, that is, it concerns what *per se* belongs to the things themselves; the "self-evident" concerns our mode of knowing the objective structure.

What then is the exact sense of the *per se* and of the *per accidens* when these terms are applied to a proposition? St. Thomas gives an exact description of it in his commentary on the *Posterior Analytics*, where he explains and makes his own the famous Aristotelian expressions *κατὰ παντός, καθ' αὐτὸ καὶ ἡ αὐτό, πρῶτον* ("in every instance, essentially and by reason of its own nature, first"). From these expressions was born, in the Middle Ages, the doctrine of the four modes of *per se* predication. For example, we read in St. Thomas's commentary, I, lect. 10, n. 2:

This preposition *per* designates a relationship of cause . . . sometimes formal . . . sometimes a relationship of material cause . . . also a relationship of extrinsic cause, especially of efficient cause. . . . Just as this preposition *per* designates the relationship of cause, when something extrinsic is the cause of what is attributed to the subject, so also when the subject or something belonging to the subject is the cause of what is attributed to it; and this is the signification of *per se*. (*Haec praepositio per designat habitudinem causae . . . aliquando quidem formalis . . . quandoque autem habitudinem causae materialis . . . etiam habitudinem causae extrinsecae et praecipue efficientis. . . . Sicut autem haec praepositio per designat habitudinem causae, quando aliquid extrinsecum est causa eius quod attribuitur subiecto; ita quando subiectum vel aliquid eius est causa eius quod attribuitur ei; et hoc significat per se.*)

The preposition *per* designates, then, a relationship, primarily a causal relationship, and consequently, one which is necessary and intelligible. We are given examples, such as, "The body lives by the soul," "The body is colored by reason of (*per*) the surface," "Water is heated by fire." Now if this cause which connects a predicate with its subject is to be found in the subject itself, by reason of the form which denominates it, then it has that predicate *per se*. If the subject is not in that manner the cause of its predicate, then the presence of the predicate has an external cause, and the subject is determined by this predicate *per accidens* (nn. 5 and 7). In both cases there is naturally question of objective structures which are different in nature.

From this consideration St. Thomas deduces, perhaps here and there in a somewhat far-fetched manner, four modes of *per se* predication (*modi dicendi per se*). We shall neglect the third mode, for it has nothing to do with the proposition. The three others give occasion for the following remarks. According to the first mode, the predicate forms part of the definition of the subject. According to the second mode, the inverse takes place, the subject is there the "material cause." But note well, it has to be the proper matter and the proper subject (n. 4) of the predicate. For in every proposition, the subject, although "standing for the matter," does not always function as the *proper* matter. It is proper matter by reason of its own form (*ratio*) and, as we have said, it is by reason of this that the subject has a formal function. The other mode of *per se* predication is realized if the subject has the relationship of efficient or some other cause. This is expressed by the phrase "by reason of" (*propter*; Aristotle's δι' αὐτό). This last kind of *per se* mode which is, we believe, by far the principal one, coincides practically always with the second since the subject is precisely such a cause in relation to its properties. The "some other cause" (*cuiuscumque alterius*) refers, it seems to us, to a cause that is in some way active (*causa quodammodo activa*—*Sum. theol.*, I, q. 77, a. 6, ad 2). Hence, every proposition whose predicate is attributed to the subject according to one of these three modes of *per se* predication, and hence which is an affirmation of an objective structure constituted by such a relationship, is a *per se* proposition.¹

A predicate can be united to a subject not only *per se*, however, but—even more basically—*per se et primo* (καθ' αὐτὸ πρῶτον). The meaning of the expression is as follows: the form (*ratio*) of a subject, and thereby the subject itself, is united *per se* to the predicate if this latter is related to it as to one of the above-mentioned causes. Now the subject can be characterized in such manner that it has other formal notes besides the one which implies the predicate; then the subject contains superfluous specifications. In omitting these last, one still has the *per se* relationship. Now although the connection remains *per se* in such a case, still the predicate is not united *primo* to this subject, for there is something more basic, something prior (*prius*; πρότερον) in this subject which already implies the predicate. But in omitting the essential determination of the subject we destroy the connection between the subject and predicate, for the necessary connection arises and is basic (*primo*) only by reason of the precise determination which is necessary and sufficient. The classical example of Aristotle is that of a triangle, a figure the sum of whose angles

is equal to two right angles. When we enunciate this predicate of an isosceles triangle, we certainly have a *per se* proposition, but not *primo*; the determination "isosceles" is too narrow a specification. If we omit other determinations besides "isosceles," such that the subject becomes "polygon" instead of "triangle," then the predicate is no longer *per se*, the proposition is no longer universally true. The *per se* appears *primo* with the determination of "polygon" to "polygon of three sides," that is, "triangle." Such is Aristotle's example (*Posterior Analytics*, I, c. 4; St. Thomas, *in hoc*, lect. 11, nn. 2, 6-8). A proposition which expresses a relationship which is *per se et primo*, is, even as a universal affirmative proposition, convertible.²

Per se propositions are the proper material of science or of the demonstrative syllogism. Reread the texts cited above (from *In Posteriora Analytica*, I, lect. 35, nn. 2 and 3): "*Per se* predication is proper to demonstrative science. . . . Demonstration is concerned only with what *per se* belongs to things. Such are its conclusions, and out of such is demonstration constructed." In the lessons which follow the explanation of the term *per se* (nn. 12-17 and frequently in the subsequent numbers) the doctrine of the *per se* proposition is applied with care to the theory of demonstration, the strictly scientific argument which, starting from necessary premises, deduces necessary conclusions. From then on "necessary propositions" and "*per se* propositions" become identical.³

The predicates which, according to Aristotle, are attributed to the subject "essentially and by reason of its own nature" (*καθ' αὐτό και ἡ αὐτό*) can be substantial or accidental. A general term for such predicates is "properties" (*ea quae per se competunt vel insunt; υπάρχοντα καθ' αὐτό*) and of these those which are accidents are called "proper accidents" (*per se accidentia; συμβεβήκοτα καθ' αὐτό*) and are truly accidents despite their strange name. See, for example, *Summa theologica*, I-II, q. 18, a. 3, ad 2:

Every accident is not accidentally in its subject, for some are proper accidents; and of these every art takes notice. (Non omnia accidentia per accidens se habent ad sua subiecta; sed quaedam sunt per se accidentia, quae in unaquaque arte considerantur.)

St. Thomas made this doctrine his own and applied it frequently. The final words of the quotation recur under different forms: the object of a science (or of an art) is the subject and its proper or *per se* accidents.⁴ The *per se* accidents are ordinarily called by the familiar term "properties" (*propria*, or *propriae passionēs*; Aristotle's *πάθη ἴδια*). Among these

can be numbered proper relations (see *In Boeth. De Trin.*, q. 2, a. 2, ad 3). All these accidents have their origin in the substance to which they are united. This origin and this union are expressed by such terms as "flow from, proceed or emanate from, result from, be caused by, depend on" (*fluere, profluere, procedere, emanare, resultare, causari, originari, dependere*), and by the corresponding substantives.⁵

The metaphysical problems connected with the origin of proper accidents do not enter into the scope of this present research, but we must note this peculiarity, that the necessity of this relationship between them and their substrate is described as an *absolute* necessity.⁶ Here, for example, is a text which insists upon it strongly (*Cont. gent.*, II, 55):

What belongs to a thing *per se* is in that thing of necessity, always and inseparably. (*Quod per se alicui competit, de necessitate et semper et inseparabiliter ei inest.*)

Such, then, is the nexus which unites the predicate to the subject in the *per se* proposition and in the corresponding objective structure. The nature of this nexus is not expressed in the simple and ordinary formula of the proposition (subject and predicate and copula) even though the mind, in judging, knows it. This simple formula is therefore a very inadequate means of expression. This defect can be remedied in many ways which deserve our study. The first way is by use of "reduplication." St. Thomas's doctrine on reduplicative propositions contains valuable teaching on the nature of the nexus which, in the *per se* proposition, supposes a subject to have also a formal function.

2. REDUPLICATIVE PROPOSITIONS

St. Thomas discusses the meaning of reduplication on the occasion of certain theological questions, but these are points which demand, above all, exactitude of formula. To achieve this he has to attend particularly to the function of the subject. This function is accentuated by reduplication. The theological aspect of the questions does not concern us here, but rather the logical and noetic aspect, since it contains information on the phenomenological part of St. Thomas's theory of the judgment.

The *Summa theologiae* (III, q. 16, a. 10) examines the admissibility of the formula, "Christ as man is a creature" (*Christus secundum quod homo, est creatura*). The solution is based on the meaning of the subject

of the proposition and the accentuation of that meaning given by the reduplication. We read:

When we say, "Christ as man," this word *man* may be added in the reduplication either by reason of the suppositum or by reason of the nature. If it be added by reason of the suppositum, since the suppositum of the human nature in Christ is eternal and uncreated, this will be false: "Christ as man is a creature." But if it be added by reason of the human nature or in accordance with the human nature, it belongs to Him to be a creature, as was said above. (Cum dicitur, "Christus secundum quod homo," hoc nomen *homo* potest resumī in reduplicatione vel ratione suppositi, vel ratione naturae. Si quidem resumatur ratione suppositi, cum suppositum humanae naturae in Christo sit aeternum et increatum, haec erit falsa: "Christus, secundum quod homo, est creatura." Si vero resumatur ratione humanae naturae, sive secundum humanam naturam, convenit sibi esse creaturam, ut supra dictum est.)

The subject of such a proposition clearly has a double function: a material function according to which it designates the suppositum, and a formal function according to which it must be understood rather as a form or nature (here, human nature). Of itself the reduplication can accentuate either of the two functions. Nevertheless, the formal function has preference, and when as above the reduplication is made without other indication, it puts into relief the formal function of the subject. Hence the formula under examination has rather the second meaning, which is true. For we are told:

It must be borne in mind that the term covered by the reduplication signifies the nature rather than the suppositum, since it is added as a predicate, which is taken formally; for it is the same to say, "Christ as man," and to say, "Christ, as He is a man." Hence this is to be granted rather than denied: "Christ as man is a creature." (Sciendum tamen est quod nomen sic resumptum in reduplicatione magis proprie tenetur pro natura quam pro supposito; resumitur enim in vi praedicati, quod tenetur formaliter; idem enim est dictum, "Christus secundum quod homo," ac si diceretur, "Christus secundum quod est homo." Et ideo haec est magis concedenda quam neganda: "Christus secundum quod homo, est creatura.")

If we want to accentuate the material function by means of reduplication, we must add something that will indicate it:

But if something further be added whereby the term covered by the reduplication is attracted to the suppositum, this proposition is to be denied rather than granted, for instance were one to say, "Christ as *this* man is a creature." (Si tamen adderetur aliquid per quod pertraheretur ad suppositum, esset pro-

positio magis neganda quam concedenda; puta si diceretur, "Christus, secundum quod *hic* homo, est creatura.")

But then one must stress the determination "this." It is clear, then, that there are propositions in which the subject, besides its ordinary material function, has also a formal function. In a proposition like the singular one we have just examined, if it is formulated without reduplication, the formal function is not preponderant. In the second objection appeal is made (referring to Article 8) to the opinion of St. Thomas himself, who does not approve without restriction the proposition, "The man, Christ, is a creature." The answer tells us:

"Man" as placed in the subject refers rather to the suppositum, and as placed in a reduplication refers rather to the nature, as was stated above. And because the nature is created and the suppositum uncreated, then, although it is not granted without qualification that "This man is a creature," yet it is granted that "Christ as man is a creature." (Ly *homo*, secundum quod ponitur in subiecto, magis respicit suppositum; secundum autem quod ponitur in reduplicatione, magis respicit naturam; ut dictum est. Et quia natura est creata, suppositum autem increatum, ideo, licet non concedatur ista simpliciter, "Iste homo est creatura," conceditur tamen ista "Christus, secundum quod homo, est creatura.")

In the proposition just discussed, the material function evidently predominates, for it is singular. Its singular character is further underlined by the addition of the term "this," as also by the reduplication, "as this man." In universal propositions this circumstance is lacking; there the subject has especially a formal function. And this explains why one only rarely corrects, by reduplication, the defect of the simple and ordinary formula which we indicated at the end of the preceding paragraph.

St. Thomas makes use of the same criterion in the two following articles of this question. The formula of Article 10 is examined also, but in a much more complicated context, in *In Sententias*, III, D. 11, a. 3. The same work (D. 10, q. 1, a. 1, resp. and sol. 2) examines analogous formulas, "Whether Christ as man is God" and "Whether Christ as *this* man is God" (*Utrum Christus secundum quod homo, sit Deus; Utrum Christus, secundum quod iste homo, sit Deus*). The first problem, in itself, is solved negatively, the other affirmatively. The solutions are deduced from the principles of the structure of the proposition which we have just seen, but they offer some further detail. In the general response we read:

That which is reduplicated in a proposition after saying "as" is that by reason of which the predicate belongs to the subject; wherefore it is necessary

that it be in some way the same as the subject and in some way the same as the predicate. (Id quod in aliqua propositione reduplicatur cum hoc quod dico, "secundum quod," est illud per quod praedicatum convenit cum subiecto; unde oportet quod aliquomodo sit idem cum subiecto et aliquomodo idem cum praedicato.)

The word expressing the reduplication is, then, the means by which (*per quod*) the predicate is united to the subject. The *per* designates the reason or the cause of this relation, that which renders it intelligible, that by which the original proposition is *per se*.

The term *same* will rarely demand a strict interpretation; ordinarily, it should be taken as "same in some way" (*aliquomodo*); that is to say, it indicates what makes the union necessary, and this is manifest from what follows. The text in fact compares this relation to the relation of a middle term to the predicate of a conclusion:

Just as the middle term in an affirmative syllogism is related to the predicate as to something which *per se* follows from it; for nothing belongs to a thing inasmuch as it is an animal unless that thing belongs *per se* to animal according to some one of the ways of *per se* predication. (Sicut medius terminus in syllogismo affirmativo ad praedicatum quidem habet comparisonem sicut ad id quod *per se* sequitur ipsum; nihil enim convenit alicui, secundum quod est animal, nisi illud animali *per se* conveniat secundum quemcumque modum dicendi *per se*.)

The relation of the middle term to the predicate of the affirmative conclusion is the following: the predicate is a *per se*, and hence necessary, consequence of the middle term. Thus a predicate which is attributed to a subject "inasmuch as it is an animal," in a proposition which admits a reduplication, is a consequence of the animal nature. It is united to it *per se*, necessarily and intelligibly.

Concerning the subject we likewise have some detail:

On the other hand [the middle term] is related to the subject as something which is included in the subject. There is included in the subject the substance of the subject, its antecedents as causes, and its consequents as accidents. (Ad subiectum autem comparatur sicut ad id quod includitur in subiecto. Includitur autem in subiecto ipsa substantia subiecti, et antecedentia sicut causae, et consequentia sicut accidentia.)

Hence the earlier phrase, "the same as the subject," is to be taken widely; not only the substance itself is meant, but also its necessary presuppositions and consequences.

There then follow examples of all the cases. Note the last two, which regard the substance itself:

If something is attributed [to the subject] by reason of the suppositum itself, then we say that Socrates, inasmuch as he is Socrates, is an individual; if by reason of the nature, then we say that man as man is animal. (Si autem attribuatur aliquid ratione ipsius suppositi, sic dicimus quod Socrates, secundum quod est Socrates, est individuum; si autem ratione naturae, sic dicimus quod homo, secundum quod homo, est animal.)

We see again that in a singular proposition, on condition that it be *per se*, the suppositum can also be the object of a reduplication; but in a universal proposition the reduplication, enunciated purely and simply, puts the accent on the formal function. This implies that the subject of a *per se* proposition even without reduplication has a formal function. This is presupposed if this reduplication is applied without violating truth. Singular propositions do not have any scientific importance, except in special cases, as in Christology; only universal propositions have a scientific value, and in these the predicate should result *per se* from a form of the subject.

Solutio 2 of this same text (*In Sent.*, III, D. 10, q. 1, a. 1) gives the same doctrine. We note only that the phrase "is included in the subject" is replaced by "is implied in the subject-term" (*in nomine subiecti implicatur*). In a moment we shall see other substitutes, "the form connoted by the subject," "the form signified," and "the form in apposition with the subject." To have true reduplication, then, it is necessary and sufficient that the proposition be *per se*:

For the truth of such predications no more is required than that the predicate belong *per se* to what is reduplicated. (Ad veritatem huiusmodi locutionum non exigitur nisi quod praedicatum per se conveniat ei quod replicatur.)

In *In Sententias*, III, D. 11, a. 4, ad 6, we are told that reduplication demands an expression that is both true and *per se*. The difference between a true proposition in general and a true proposition which is *per se* is attributed to the formal function in the latter:

For the truth of the proposition it suffices that the predicate belong to the subject in any way; but that the proposition be *per se*, it is necessary that the predicate belong to it by reason of the form implied by the subject. (Ad veritatem propositionis sufficit quod praedicatum conveniat subiecto quocum-

que modo; sed ad hoc quod propositio sit per se, oportet quod conveniat sibi ratione formae importatae per subiectum.)

The same is stated in *In Sententias*, III, D. 12, q. 1, a. 1, ad 6:

For the truth of the proposition it suffices that the predicate belong to the subject; nor is it necessary that it belong to it by reason of the form which is signified by, or in apposition with, the subject, unless it is *per se* predication. (Ad veritatem propositionis sufficit, quod praedicatum conveniat subiecto; nec oportet quod conveniat ei ratione formae significatae vel appositae, nisi sit praedicatio per se.)

To render completely the meaning of *ratione formae* in the two preceding texts, it seems to us that a translation such as "according to the form" is not sufficient, it would be better to say "by reason of the form" or "in consequence of the form." The connection of the predicate with this form and through it with the subject is intelligible.

The difference between ordinary propositions, which suppose only a material identity of the subject and predicate, and the *per se* propositions is, then, marked off very neatly. Here is another text that states the matter clearly and briefly (*De potentia*, q. 8, a. 2, ad 6):

Something is predicated *per se* of a subject when it is predicated of it by reason of its proper nature (*ratio*); what is not predicated by reason of its proper nature but because of material identity is not predicated *per se*. (Per se praedicatur aliquid de aliquo, quod praedicatur de eo secundum propriam rationem; quod vero non secundum propriam rationem praedicatur, sed propter rei identitatem, non etiam praedicatur per se.)

There is yet a further detail demanding our attention. We have already seen that to have a *per se* proposition it suffices that the predicate follow *per se* from one part of the total content of the subject; a reduplication is possible, then, whether according to the whole (in accordance with its formal function), or more strictly, according to that part alone (in which case it would be a *per se et primo* predication). In the text already cited from *In Sententias*, III, D. 10, q. 1, a. 1, sol. 2, we read:

For a predication to be *per se*, it is not necessary that the predicate belong to the subject according to all that is implied in the subject-term; but it suffices that it belong *per se* to the subject according to some one of the things implied. Just as to reason does not belong to man inasmuch as he has a body but inasmuch as he has a soul. Hence, "Man reasons" is a *per se* proposition. (Ad hoc quod aliqua praedicatio sit per se, non oportet quod praedicatum per

se conveniat subiecto secundum omne quod in nomine subiecti implicatur; sed sufficit si secundum aliquid eorum sibi per se conveniat. Sicut ratiocinari per se convenit homini non in quantum habet corpus, sed in quantum animam habet. Unde haec est per se, "Homo ratiocinatur.")

When, by complete understanding of the objective structure, we know which form of a complicated subject is the cause of the predicate, we can, by reduplication, put the emphasis on that form alone. Thus a straight line, as a straight line, is divisible; but our intuition is expressed better by the formula, "A straight line as extended is divisible," for then we have the *primo* as well as the *per se*.

Hence we again find the objective structure and its intelligible representation in the structural properties of the proposition. The subject and the predicate function always as the matter and the form of the disposition. If the subject is designated by its proper form (*ratio*) and not only as "this," then this form is materially identical with the form of the predicate, that is to say, both are forms of the same substrate. If the subject's own form is stated, but merely in order to designate the subject, then the only connection between the form of the subject and that of the predicate is their material identity. But if the subject also has a formal function, then there is a direct connection, a formal nexus, between the two forms. In the first case we have a proposition which affirms a contingent disposition, we have a *per accidens* proposition. In the other case the proposition affirms a necessary relationship and we have a *per se* proposition. In the first case we have a contingent matter, in the other a necessary matter. By the term "matter," is here designated a relationship (*habitus*) of the two forms.

We have seen all this in the preceding chapter but here we find it again affirmed, developed in the structural properties of the proposition. But the proposition, in its ordinary formula, does not sufficiently express this refined structure of the mental judgment. This structure is revealed by the application of a telling logical device, the reduplication. It accentuates what distinguishes the *per se* proposition from the other; that is, it indicates that the predicate necessarily follows from the form of the subject. If this subject is complicated, containing many forms, we can, by reduplication, single out the decisive form which is the cause of the form of the predicate and from which the predicate results or "emanates." It is this "emanation" that renders intelligible the connection between the subject and the predicate.⁷

Reduplication is thus a means of putting the accent on the necessity

(*per seitas*) of a proposition, to distinguish it, even in its formula, from a contingent (*per accidens*) proposition. The judgment itself has no need of this means; the mind, in the reflection that leads to the judgment, has already acquired the knowledge of the character of the objective structure which it is going to affirm. It already distinguishes the *per se* from the *per accidens*, it knows the formal character of the nexus which will be affirmed by a *per se* judgment and the material character of the nexus which will be affirmed by a *per accidens* judgment. It knows this even though both kinds of propositions have their origin in sense data. The difference between the two cases is this, that in the case of the *per accidens* proposition, the mind's reflection does not teach us which form in the subject is the source of the predicate, nor even whether the predicate springs from a form intrinsic to the subject. But in the case of a *per se* proposition the reflection does manifest this. For example, when we have before our eyes, or in our imagination, a body with its extension, color, figure, and its multiple other determinations and relations, we still understand that the body is divisible *as extended*. It is from the form "extended," and only from this, that divisibility results, and this nexus is necessary and intelligible. This is why St. Thomas, when he opposes the perfect intelligibility of the necessary to the defective intelligibility of the contingent, attributes this intelligibility and this necessity to the formal nexus (*Sum. theol.*, I, q. 86, a. 3):

Necessity results from form, because whatever is consequent on form is of necessity in the subject. (*Necessitas autem consequitur rationem formae; quia ea quae consequuntur ad formam, ex necessitate insunt.*)⁸

We have called this knowledge of the formal nexus and, hence, of the precise form whence springs the form of the predicate, a "singling out" of this decisive form. It is one of the multiple determinations of the subject; it belongs to what we have heard called "whatever is implied or included in the subject." From among these multiple forms, all present in the representation, the mind, in reflecting on this representation, "singles out" this unique form to which the predicate is necessarily united. This is a true "intuitive abstraction," or an "abstractive intuition." This operation is not successful in every matter or in every structure given in the representation—hence the difference between the two kinds of propositions. Where this operation is successful, this "singling out" takes place in the caesura which separates the complex representation from the judgment.

Reduplication is only one of the means we use to express the formal nexus in the formulated proposition; there are other means as well. We have already come upon one in the text of *Summa theologiae*, III, q. 16, a. 10, where we were told concerning the reduplication, "It is the same to say, 'Christ as man,' and to say, 'Christ, as He is a man.'" That is why the reduplication is said to be made "as a predicate" (*in vi praedicati*). That is why to transform a determination which gives the subject a formal function into the predicate of an adjectival proposition is equivalent to an accentuation of this function by reduplication. This is what the Scholastics often do in their demonstrations; the proposition, "Every A is B," is often transformed (if it is *per se*) into, "Whatever is A is B." This is a very simple and clear means of expressing the *per se* character of a proposition. Another means is the introduction of a "*quia* clause"; that is, a subordinated causal proposition. A modal proposition, on the contrary, modifies somewhat the nature of the proposition, for it is a proposition concerned not with the matter but with the mode of an enunciation.

A perfect means of expressing a *per se* proposition is, for St. Thomas, the conditional proposition. We shall examine it in the following section.

3. CONDITIONAL PROPOSITIONS

A. *The General Meaning of the Conditional Proposition.* Aristotle denied all scientific value to the conditional proposition. At least he did so in theory, for in practice he expresses necessary propositions and even scientific principles of the highest value by conditional propositions. The foundation of his theoretical negation seems to be that to the conjunction "if" he gives the following meaning: it expresses a pure hypothesis which can indeed be the starting point of a purely dialectic discussion, but not of a scientific demonstration. He promised a treatise on the hypothetical syllogism but to all appearances did not get to write it. If he had done so, he would without doubt have attributed to "if" the meaning which he makes use of in practice, namely, the expression of a necessary nexus between the antecedent and the consequent.

St. Thomas here sees the principal reason why Aristotle, in the beginning of the *Perihermeneias*, makes no mention of the division of propositions into categorical and hypothetical (lect. 1, n. 8):

A hypothetical enunciation does not contain absolute truth, the knowledge of which is required in demonstration and about which this book chiefly deals;

but a hypothetical enunciation signifies that something is conditionally true, which does not suffice for a scientific demonstration. (Hypothetica enuntiatio non continet absolutam veritatem, cuius cognitio requiritur in demonstratione, ad quam iste liber principaliter ordinatur; sed significat aliquid verum esse ex suppositione, quod non sufficit in scientiis demonstrativis.)

He knows, of course, that this defect can be remedied, since he continues: "unless it be confirmed by the absolute truth of a simple enunciation" (*nisi confirmetur per absolutam veritatem simplicis enunciationis*).

St. Thomas, in his own theory and practice, goes much further. The conditional proposition itself corresponds to a judgment which affirms an absolute truth. This truth is that of a nexus, of a connection. The affirmation of this nexus is perfectly equivalent to that of the categorical judgment which affirms the relationship of the predicate to a subject, and hence of an objective structure. The conditional proposition even seems to serve as a prototype. For we read in *In Perihermeneias*, I, lect. 8, n. 9:

A categorical enunciation is called affirmative only by reason of the verb which is affirmed or denied; just as a conditional proposition is called affirmative or negative because there is affirmed or denied the connection which gives the conditional proposition its name. (Enunciatio categorica dicitur affirmativa solum ratione verbi, quod affirmatur vel negatur; sicut etiam conditionalis dicitur affirmativa vel negativa, eo quod affirmatur vel negatur coniunctio a quo denominatur.)

This connection is identical with the composition of the categorical proposition; it is the verb which there implies composition. We read farther on, under the same number:

In every enunciation there must be a verb implying composition, which cannot be understood without composites. (In omni enunciatione oportet esse verbum, quod importat compositionem, quam non est intelligere sine compositis.)

In the following paragraphs we shall examine the nature of this connection between the antecedent and the consequent of the conditional proposition. St. Thomas explains it frequently in connection with many problems. We shall see that it is a necessary connection, a nexus not so much between the antecedent and the consequent themselves but rather between the forms (*rationes*) of the respective predicates; directly, indeed, only between these forms. Thus the conditional proposition is a perfect expression of a *per se* judgment.

B. *The "Material Implication" of Logistics.* The conjunction *if* and its equivalents always seem to have, in practice and in ordinary language, a meaning indicating such a necessary nexus. To bring out this meaning better it seems useful for us to take a look at a usage of the term *if* which departs from this habitual meaning. For sometimes, even in logic, this conjunction is used in a very different sense, having only one property in common with the true conditional connection. It is the *if* which we meet with in some representatives of the Stoa, and which has been revived in the "logic of propositions" of logistics. The term taken in this sense serves to describe verbally what is called a "material implication."⁹

Let us suppose that p and q are propositions which can be put into mutual relation in different ways. Let us suppose that these relations are purely exterior, not dependent in any way on the content of the propositions. One of these relationships is the "material implication"; and this, if expressed in words, reads: "If p , then q ." Here is an example which does not suppose any internal relation between two propositions: "If snow is white, then 2 and 2 make 4." Propositions put in relation in that way are only purely exterior and accidental combinations. Nevertheless, logistics attributes to them, in accordance with determined rules, "truth" or "falsity," and this "truth value" depends *only* on the truth or falsity *in fact* of the propositions p and q taken separately. Obviously, there are four possible combinations: both are true; p is true and q is false; p is false and q is true; both are false. Of these combinations, for a "material implication" only the second is called false; for the other three cases the "material implication" is called true. This distribution of "truth value" can even be considered as the definition of material implication. Another compound proposition is, for example, the disjunction, " p or q ." This disjunction is false only in the last of the four combinations. In the three other cases—hence, if at least one of the propositions is true—it is "true." This is in conformity with the natural meaning of the word *or* taken in the weak sense of *vel* (not in the sense of *aut . . . aut*). The "copulative" proposition, " p and q ," is true only in the first of the four cases. This is in conformity with the natural sense of *and*. The material implication is, then, identical with the disjunction, "not p or q ." This can also be taken as its definition.

According to the definition of material implication, the following proposition, for example, will be true: "If snow is black, then 2 and 2 make 4." This corresponds to the third case. Likewise, this proposition is true: "If snow is black, then 2 and 2 make 5." This corresponds to the

fourth case. It is thus, according to some authors, that we must understand the dictum of logic that "Anything can follow from an absurd hypothesis" (*ex absurdo sequitur quodlibet*). Already in the Middle Ages this dictum was explained in this way by (pseudo?) Scotus, who distinguishes with great sagacity different cases.¹⁰

In such logistics "conditional propositions" have hardly any connection with what is understood by that phrase in everyday life and in classical logic. Only one characteristic of the classical meaning has been retained. If a conditional proposition is true, and its antecedent is true, then the consequent cannot be false; and so if the antecedent is true and the consequent false, the conditional proposition must be false. But this is precisely the second of the four cases above mentioned, the case when the material implication itself is false. For the rest, this has no connection with the *if* understood in its customary sense.

As we have already said, logistics has borrowed the material implication from the logic of the Stoa; it also has the habit of excessively praising this logic. Perhaps it would be better to say the logic of some Stoics, for they were not at all in agreement among themselves.¹¹

According to Sextus Empiricus, Philo the Stoic defended with vigor the thesis that the proposition, "If it is night, it is day," is true when it is pronounced during the day; for then the antecedent is false, and we have the third of the above-mentioned cases. But it is false during the night, for then we have the second case. One need not raise too violent a protest against this thesis; for if we give to this proposition only the sense that this logic wishes to attach to it, it only means (for it is equivalent to, or even identical with, this disjunction): "It is not night, or it is day." And this proposition is evidently true during the day and false during the night. Hence the proposition is more innocent than it seems at first; perhaps we should say more pointless.

On the other hand, we can understand the violence with which Prantl, in the beginning of his recital of this history, descends upon this doctrine (p. 453):

Hardly ever has there appeared anywhere in the field of literature, or of human intellectual endeavor in general, anything which in worthlessness and arrogant stupidity could approximate this babble of the Stoics about hypothetical, disjunctive, causal, or similar propositions. (Es dürfte wohl kaum je irgend im Gebiete der Litteratur oder der menschlichen Geistestätigkeit überhaupt Etwas aufgetreten sein, was an Nichtswürdigkeit und arrogantem Blödsinne diesem stoischen Geschwätze über die hypothetischen, disjunktiven, causalen und dergleichen Urteile auch nur gleichkäme.)

We can more easily excuse the vehemence of these words if we consider them as the expression of the conviction that *if* has an entirely different and far more important meaning.¹² Still, we do not need to condemn outright the "logic of propositions" of logistics, much less its ulterior developments. For in giving to the proposition, "If *p*, then *q*," the meaning of the disjunction explained above, a thesis such as that of Philo loses its paradox.

But there remains the objection of many beginners that this proposition should not read, "If *p*, then *q*." There remains especially the more serious objection (to which we subscribe fully) that later on in logistics the word *if* takes on the meaning of the true *if* and corresponds to an internal connection of the propositions it unites. And thus either the transition from the beginning to what follows is not justified, or else the symbols do not sufficiently correspond to what the human mind knows and wants to express. The *if* is found in logistics also in other formulas, notably in the "formal implication" which we shall see later, for it can perfectly express the *per se* proposition and adequately corresponds to its structure; but then the word *if* can have its natural signification, even though the logicians neglect it.

After what we have seen it becomes clear that to use *if* in its natural sense is to express an internal connection between the antecedent and consequent, a connection which springs from the sense or content and not from the "truth value" of the two propositions. This fact explains our natural aversion to reading a material implication expressed as a conditional proposition.

C. *The Proper Meaning of "If."* What then is the meaning of *if* in St. Thomas? He has already spoken to us of the conjunction between the antecedent and the consequent of the conditional proposition; this conjunction was compared and equated to the verb of the categorical proposition, and hence to an objective structure (*dispositio rei*). This structure is affirmed or denied by the judgment which finds expression in the categorical proposition. Thus the conditional proposition is the expression of a judgment which affirms or denies this conjunction. We have now to study more exactly the nature of this connection in the Thomist theory.

First, it is *always* a *necessary* connection; this is the essential and universal meaning of *if* (*si*) in St. Thomas—not only in practice, but also in his express declarations. We read in *In Metaphysicam*, VI, lect. 3, n. 1198:

For since every true conditional proposition is necessary, it follows that from the very fact that the antecedent is given, the consequent necessarily follows. For example, this is a true proposition: "If Socrates runs, he moves." Granting then that he is running, it will be necessary that while he runs he moves. (Cum enim quaelibet conditionalis vera sit necessaria, oportet [quod] ex quo antecedens est positum, quod consequens ex necessitate ponatur. Sicut haec est vera, "Si Socrates currit, movetur." Posito ergo quod currat, necesse erit eum moveri, dum currit.)

Note the universality of the thesis which calls necessary the connection affirmed by the conditional proposition. Here then, in general, is the import of *if*: for the conditional proposition to be true, it must affirm a necessary connection. This is also the unique condition which is demanded. We are told expressly that the truth of the antecedent and of the consequent, taken separately, is not stipulated (*In Sent.*, III, D. 12, q. 2, a. 1):

For the truth of a conditional proposition, there is not required truth in the antecedent nor in the consequent, but only the necessary relation of the one to the other. (Ad veritatem conditionalis non requiritur neque veritas antecedentis neque consequentis, sed necessaria habitudo unius ad alterum.)

The "necessary relation" between the antecedent and the consequent is then a necessary, but also a sufficient, condition. St. Thomas defends with much insistence the thesis that the truth of the component parts taken separately is not required. We shall examine this thesis more thoroughly in a moment, but let us first examine additional testimony concerning the necessity of the connection.

A supposition opposed to a simply true proposition is simply false; but if this proposition is also necessary, then, and only then, is this supposition impossible. Now such is the case of a true conditional proposition. This latter is, therefore, a necessary proposition, even if the antecedent is impossible. Thus we learn in *Contra gentiles*, I, 20:

A conditional proposition may be true even though its antecedent is impossible. (Conditionalis potest esse vera cuius antecedens est impossibile.)

But if, in fact, it is true, then:

If there be any thing [proposed] which destroys the truth of such a conditional proposition, that thing is impossible; just as if anything [were proposed] which would destroy the truth of this conditional: "If man flies, he

has wings," it would be impossible. (Si quid est quod destruat veritatem talis conditionalis, est impossibile; sicut si aliquid destrueret veritatem huius conditionalis, "Si homo volat habet alas," esset impossibile.)

Likewise, *In Physica*, VIII, lect. 21, n. 3:

Nothing prevents the truth of a conditional proposition whose antecedent is impossible. This is obvious in this example of a conditional, "If a man flies, he has wings." Whatever removes truth, however, from a true conditional, is false even though the antecedent of the conditional be false. (Nihil prohibet conditionalem esse veram, cuius antecedens est impossibile. Sicut patet in hac conditionali, "Si homo volat habet alas." Quidquid autem tollit veritatem conditionalis verae, est falsum licet antecedens conditionalis sit falsum.)

It is true that what is in contradiction with a true conditional proposition is here only called "false," but some lines further down it becomes an "impossible." (Likewise in *In Phys.*, VII, lect. 1, n. 6.) But the only truth which is found in these propositions whose antecedent is impossible is that of the *connection* between the antecedent and the consequent. A supposition which destroys this truth is impossible; the connection, therefore, is necessary. This connection will ordinarily be the relation of a cause to its effect, where *cause* should be taken in the general sense of the term, the sense which it has for the fourth mode of *per se* predication. But it can also be the relation between a "convertible" effect (which is then affirmed by the antecedent) and its cause (which figures then in the consequent; cf. *In Post. Anal.*, lect. 23, nn. 4 and 9). Finally, the connection can be a purely logical relation.

D. *Excursus*. In the last case, one must be prudent in drawing conclusions. For in this case, even if the antecedent is true, even if it is necessary, the consequent no longer expresses an absolute necessity under all aspects, a necessity in the thing. Here is an example taken from *Contra gentiles*, I, 67:

It is necessary that Socrates is sitting, from the fact that he is seen to be sitting. Now this is necessary, not absolutely or as some say by necessity of the consequent, but conditionally, or by necessity of consequence. For this conditional statement is necessary: "If he is seen to sit, he is sitting." Wherefore, if the conditional be rendered categorically, so as to read "It is necessary that that which is seen to be seated is seated," it is clear that if it be referred to the statement, and in a composite sense, it is true, and if referred to the thing and in a divided sense, it is false. (Necessarium est Socratem sedere ex eo quod

sedere videtur. Hoc autem non est necessarium absolute, vel, ut a quibusdam dicitur, *necessitate consequentis*; sed sub conditione, vel, *necessitate consequentiae*. Haec enim conditionalis est necessaria: "Si videtur sedere, sedet." Unde et, si conditionalis in categoricam transferatur, ut dicatur, "Quod videtur sedere, necesse est sedere," patet eam de dicto intellectam et compositam, esse veram; de re vero intellectam et divisam, esse falsam.)

The conditional proposition, "If Socrates is seen to be seated, he is seated," is called a necessary proposition, according to the general sense of *if*. What is affirmed in the antecedent is in no way the cause of the consequent; but neither is it a "convertible effect." To see that Socrates is seated, the fact that he is seated does not suffice. This is why we have called such a connection a purely logical one. It is a case of "necessity of consequence" without the consequent itself being necessary. The structure affirmed by the consequent is not absolutely necessary (supposing, naturally, that the antecedent is true); that is to say, not necessary by reason of a necessity situated in the thing (*necessitate consequentis*) but only by reason of the necessity of a logical connection (*necessitate consequentiae*). This means that the connection is purely a logical one.

To find another formula our text then changes the conditional proposition into a categorical proposition, and—since the *if* of itself implies a necessity—into a modal proposition. This latter can be understood in two ways. If it is understood in the composite sense (*in sensu composito*), it affirms the proposition, "That which is seen to be seated is seated" (*quod videtur sedere sedet*) as a necessary truth. For in the composite sense this proposition is the dictum which is the subject of the modal proposition of which it is said that it is necessary. Hence the modal proposition is thus a judgment on the conditional proposition or its equivalent, "That which is seen to be seated is seated." So understood the modal proposition is true. But if the modal proposition is understood in the divided sense (*in sensu diviso*), the "necessary" refers to the thing, and not to the dictum. The thing (the objective structure) is the act of being seated (*sessio*) united to Socrates. But this union is not at all a necessary one, it is only contingent. So understood, the modal proposition would be false.¹³

What we have just seen can also be expressed in this formula: given the truth of the antecedent of the original conditional proposition, the consequent is necessarily true, but it does not affirm a necessary structure; the consequent is infallibly true, but "in contingent matter." These distinctions are generally applicable to the divine knowledge of contingent things. St. Thomas concludes the passage with these words:

And so in these and in all like arguments employed by those who gainsay God's knowledge of contingencies, there is a fallacy of composition and division. (Et sic in his, et in omnibus similibus quae Dei scientiam circa contingentia oppugnant argumentantur, secundum compositionem et divisionem falluntur.)

In *Contra gentiles*, III, 94, this doctrine is applied to the divine foreknowledge of contingent futures and at the end we find once more our final formula:

This conditional proposition is true, "If God foresaw that this would happen, it will be so," as the second argument stated. But it will be as God foresaw that it would be. Now, He foresaw that it would happen contingently. It follows then infallibly that it will be contingently and not of necessity. (Haec conditionalis est vera, "Si Deus providit hoc futurum, hoc erit," sicut secunda ratio procedebat. Sed sic erit sicut Deus providit illud futurum. Providit autem illud esse futurum contingenter. Sequitur ergo infallibiliter, quod erit contingenter, et non necessario.)

The last sentence is the formula we have used to express Socrates' act of sitting.¹⁴ And nevertheless the antecedent, "God foresees this future," is here a necessary proposition. Even in this case one cannot without the necessary distinctions say (*De ver.*, q. 2, a. 12, obj. 7):

In every true conditional, if the antecedent is absolutely necessary, the consequent is likewise absolutely necessary. (In omni vera conditionalī, si antecedens est necessarium absolute, et consequens est necessarium absolute.)

This is the objection which St. Thomas meets everywhere he treats the problem of the divine knowledge of contingent futures, or even of contingents in general.¹⁵

Hence, if a conditional proposition only expresses a purely logical connection, then—even if the antecedent is absolutely necessary—one must be prudent in attributing necessity to the objective structure which is affirmed in the consequent. If there is a causal connection, the consequent in itself will also be absolutely necessary.

E. *The Structure of the Nexus.* The connection, therefore, between the antecedent and the consequent is often, but not always, a causal connection. Manifestly, neither is it always an immediate nexus. In the sentence, "If the harvest is bad, the price of bread will rise," there is certainly a connection which implies some intermediary propositions. If all the

intermediary members are necessary causes, the connection remains causal and necessary. One can connect the conclusion, even of a long reasoning process, in a conditional proposition to any antecedent which is in some way an important premise. One can also express all the independent premises by a copulative proposition and make the conclusion follow. Supposing the reasoning to be correct, the propositions are all necessary conditional ones.

Among these propositions, whether the connection is immediate or not, there is one class of great importance, that of propositions whose antecedent and consequent have the same subject. This is not the case with the proposition about the harvest and the price of bread. But where the subject of antecedent and consequent is the same, the *predicates* of the antecedent and of the consequent are *forms of the same subject*. Then the conditional proposition, because it affirms a necessary connection, resembles closely a categorical *per se* proposition. For this latter also affirms a necessary nexus, not between two propositions or two affirmations, but between two forms of the same subject, of which the first has especially a formal function, and the second results from the first. Now, St. Thomas goes even further. His analysis of the meaning of the conditional proposition teaches us that it affirms not so much a connection between two *propositions* (as we have been describing it), and hence between two affirmations, but, primarily at least, a nexus between the predicates of these propositions and hence between two forms of the same subject. The conditional proposition is therefore totally equivalent to a *per se* categorical proposition. Both types of propositions are formulas expressing the same judgment or intuition of the mind.

In *Summa theologiae*, I, q. 86, a. 3, St. Thomas has a very remarkable theory to explain the possibility of our *intellective* knowledge of a *contingent* fact. That this knowledge be possible, he demands a certain intelligibility in the contingent fact, that is to say, some known necessary connection. In his reasoning he appeals to an example:

That Socrates runs is in itself contingent; but the relation of running to motion is necessary, for it is necessary that Socrates move if he is running. (Hoc ipsum quod est Socratem currere, in se quidem contingens est; sed habitudo cursus ad motum est necessaria; necessarium enim est, Socratem moveri, si currit.)

In order that the contingent fact, "Socrates runs," be knowable intellectually, there is demanded a necessary relationship. But this relationship

is here a relation between two forms of the same subject, which are as a genus and its species, between movement (*motus*) and running (*cursus*). Now—and this is what demands our attention—in the second part of this passage St. Thomas wants to express this relation between these two *abstract forms*, and for this purpose he uses a conditional proposition which he formulates for this concrete case: "If Socrates is running, he moves." The purpose of this conditional is only to express the necessary connection between these two forms. He seeks the intelligible moment in the contingent fact, and he finds there the necessary connection between these two forms, and he expresses it by this conditional proposition.

There are some stranger cases, cases where the antecedent is not only, as here, contingent, but where it is even impossible; sometimes where the consequent also is impossible. We know already that these conditional propositions can be true, and so, like all true conditionals, they are necessary. We frequently meet this doctrine in St. Thomas.¹⁶ Often there is question of a proposition like this, "If God wills to sin, He can sin"—a proposition which at first sight awakens a certain aversion. Nevertheless, it is called true, and this is illustrated by examples such as, "If a man flies, he has wings," "If a hundred is less than five, it is less than ten," "If man is an ass, he has four feet," "If man is an ass, he is irrational." In all these cases the necessary connection which is expressed by *if* cannot be a connection between the antecedent and the consequent as *propositions*. The objective structure which, in these propositions taken separately, would be affirmed, cannot even be formed; they can be put together only verbally, just as we can affirm them verbally; but in the mind and in a veritable judgment, this is quite impossible. And still their connection is termed necessary, and the conditional proposition which affirms them is called true. This connection can, then, *only* be a relationship between the forms which supply the predicates of the separated propositions. Then the nature of the subject is entirely deprived of importance; it has to satisfy only one condition, that of being the subject in the two propositions, thus having a purely material function.

The conditional proposition affirms, therefore, a necessary connection between two forms of one and the same subject, a relation such that the second form, that of the consequent, results from the first. But this is precisely what the categorical *per se* proposition does; and if this latter is formulated simply, as is usually the case, it says nothing of this necessity. For St. Thomas the conditional proposition does, however, express the necessity, for "every true conditional proposition is necessary."

It must likewise be noted that these strange propositions with an absurd antecedent are not an application of the dictum, "Anything follows from an absurd hypothesis" (*ex absurdo sequitur quodlibet*), understood in the sense we have seen above. According to this conception of the dictum we can add to the antecedent, "If man is an ass," any other proposition and so obtain a "true" conditional proposition. This is not granted by St. Thomas. To have a true conditional proposition, the consequent must have a predicate containing a form which is necessarily connected to the form of the antecedent's predicate. He demands a truly formal and necessary connection.

One more remark. One might be inclined to contest this thesis which calls such strange propositions true. One could say that these propositions, with their absurd components, are neither true nor false, but that they make no sense and that a series of words which have the form of a proposition, but which make no sense, cannot be the expression of a judgment and, hence, can be neither true nor false. Nevertheless, we must be careful, for this would be to throw overboard any argument *ex absurdo*, and destroy a large part of our sciences. In fact the argument *ex absurdo* uses just such a conditional proposition, or judgments expressed by such propositions. The mixed hypothetical syllogism, generally admitted, and rightly so, has for the *modus tollens* such a proposition as its major when there is question of necessary matter.

These conditionals do have, in fact, a sense—provided they are taken as affirming *only* the connection between the predicates, a connection which does in fact have being. And since these propositions have a sense, they can be true or false, independently of the absurdity of the antecedent and whether this absurdity is known by us or not. The proposition, "If one hundred is less than five, it is less than ten," takes the place in fact of the proposition, "If any number is less than five, it is less than ten."

The nature of the subject in these conditional propositions is without any importance. For this reason, even when one expresses this nature, such propositions are really equivalent to propositions that formulate only the relations of the "nature (of the two predicates) considered absolutely." Thus they are equivalent to categorical propositions that are necessary and universal. We have already met an example in *Contra gentiles*, I, 67. There St. Thomas changes the proposition, "If Socrates is seen to be seated, he is seated," into a categorical proposition, "Whatever is seen to be seated is, of necessity, seated." Because he wanted to emphasize the necessity, he made it a modal proposition. If one does not have that inten-

tion—and this is the usual case—the categorical proposition equivalent to the conditional will be, “Whatever is seen to be seated, is seated.” The proposition of *Summa theologiae*, I, q. 86, a. 3, whose purpose is to describe the relation of running to movement (namely, “If Socrates is running, he moves”), is thus identical with the following, “Whatever runs moves.” And this latter is a proposition which expresses a relation of the nature absolutely considered. It can be quantified immediately by the addition of the term “every,” for it is a universal proposition. It is the truth which we want to express when we say, “If Socrates is running, he moves.”

When we want to express the connection between two forms, we do so in some concrete subject. We often do this by using conditional propositions and taking a concrete individual, Socrates for example, as subject. The reason for this is that sensation is the source from which flows our human knowledge. We have already seen (Chap. II, Sect. 2) that “The nature absolutely considered and in singulars is the reason, and in a sense the measure, of human understanding.” And, as we have seen (Chap. III, Sect. 2), this is why we know directly the form and the nexus only in concrete cases, as that of Socrates.¹⁷ What we understand and affirm as necessary are the relations of the nature considered absolutely, but our universal affirmation of these relations is preceded by experiences of which the first is a sensible experience.

The *if*, therefore, primarily expresses a connection between forms, forms which are found in the same concrete subject and which are known by us in that concrete subject. A true conditional proposition whose antecedent is absurd cannot express anything else. But even in the case of a fully determined subject which can be the substrate of this antecedent, as in the proposition, “If Socrates is running, he moves,” still the primary meaning is an affirmation of the formal connection, an affirmation of the nature considered absolutely. The running of Socrates implies that he is moving, because the form “running” implies the form “movement.” This is what we were told above, “Because man is rational, therefore Socrates is rational.” This is why the conditional proposition remains true even if Socrates does not run, even if, because he no longer exists, his running is impossible.

Another remark should be added. The relation of the absolute nature exists in a concrete real subject which also has other determinations (as in the case of Socrates), and it is known by us in this concrete subject. For our human understanding both the absolute nature and its realization in

a concrete subject have priority over the universal knowledge as such. We arrive, then, at this knowledge by an abstraction. Not only an abstraction from "material conditions" which imply singularity, but also by a formal abstraction; namely, an abstraction which, among all the forms which determine the subject (Socrates) "singles out" that unique form from which springs the predicate of the consequent. As we have already remarked, this is veritable intuitive abstraction. The conditional proposition whose subject is an individual determined by a complex of forms expresses perfectly our intuition of formal relations even as to its originative source. And thus it is closely similar to a causal proposition, "Socrates, because he runs, moves." This causal proposition also expresses the real fact; whereas if we want to affirm only the essential connection, and if we want to express at the same time that it is real and known by us only in some concrete subject, then the better formula is indeed the conditional proposition, "If something runs, it moves." In this formula, if the relation is true, neither the antecedent nor the consequent can be absurd. Then the connection can be looked upon as a relation between two affirmations.

F. *The "Formal Implication" of Logistics.* All that we have just said has been rediscovered by logistics in the reflections which have led to its doctrine of "formal implication."¹⁸ We had many harsh things to say about logistics' material implication, but we shall have much favorable comment to make on its doctrine of formal implication. Logistics uses the term "formal implication" to express a universal categorical judgment. For example, the judgment, "Man is rational," is expressed by a symbolic formula which can be read, "If an individual is a man, he is rational." A "quantifier" can be added to express the universality of the judgment, just as is done in the classical universal categorical proposition. The individual is expressed by a letter, as "x," indicating that the nature of the individual is indifferent. (Of course, where x appears both in the antecedent and in the consequent the symbol corresponds to the same individual.) This is a felicitous expression of the Thomist thesis which says that the subject and predicate of the proposition are materially identical.

The form humanity, for example, which characterizes a subject has, according to the Thomist doctrine, a double function in the *per se* proposition. To begin with, inasmuch as the form is concretized in the subject, the subject stands for the matter; but then, because the proposition is *per se*, it also has a formal function. The two functions are expressed in the formal implication. The material function is expressed, because the

form of the subject is found in the antecedent describing a disposition of *x*: if *x* is a man, *x* is rational. This needs no further explanation. The formal function is accentuated, because the form of *x* is the *predicate* of the antecedent. This is a means of expression which St. Thomas had already used (*Sum. theol.*, III, q. 16, a. 10; *supra*, Chap. IV, Sect. 2).

The formal function of the predicate ("rational") is clearly expressed. Its relation to the subject may be different in different cases, but is always necessary. This too is expressed by the formal implication of logistics, in some systems before, in other systems after, the symbolized components. The symbol used corresponds to the Thomist *if* and hence expresses a necessity. The whole has, therefore, this meaning: given the form of the subject in the antecedent, there follows the form of the consequent in the same subject. Obviously the inverse is not universally true, and in general the implication is not reversible. If it is, then it becomes a "formal equivalence"¹⁹ which can be translated: "If something is A, then and then only is it B." Then the corresponding categorical proposition is not only *per se* but *per se et primo*, and is simply convertible.

The particular proposition, which is in general a "*per accidens* proposition," likewise finds felicitous expression in logistics. A conditional proposition is no longer used, but a copulative one. Instead of the *if* there is an *and*. The proposition, "Some A (at least one) is B"—where A and B represent forms and the "some" is the subject for both forms—finds in logistics an apt formula: "There is some *x* (at least one) with this quality, that *x* is A and *x* is B." The material identity that characterizes every proposition is there well expressed. The fact that the two forms A and B should not have any other connection, but meet only in the same subject, perhaps accidentally, is also well expressed by the copulative proposition. Whence the other fact, that this particular proposition admits of simple conversion. This formula also seems to express exactly what takes place in the human mind when it judges in that manner.

In the *per se* proposition, there is, then, a necessary connection between the subject and the predicate *by reason of* the form of the subject, a form which of itself implies this connection. This is why the connection is called formal. The intellect sees all this if it pronounces a judgment which is expressed by a *per se* proposition.

Nevertheless, the ordinary form of this proposition (subject, copula, and predicate) is a very incomplete expression of what the intellect sees; the conditional proposition that has the same subject in the antecedent and in the consequent is a much better formula, because the nexus is

designated as necessary by the conjunction *if*. In the Thomist theory, there is a close relationship between "necessity" and "intelligibility"; this we shall see in the following section. But first we shall add here a summary discussion on the syllogism and the conditional proposition as the expression of the operation of the mind which ordinarily is expressed by a categorical proposition.

G. *Excursus*. The Thomist theory on the conditional proposition should have some influence on the theory of the syllogism, if we take into account the relations of the syllogism to the real processes of the human mind. We shall be content with a few remarks.

The syllogism of the first figure is usually called the most perfect. Likewise, it is held to be the most clear. This, it seems to us, is in great part true but not entirely so. The modes *Barbara* and *Darii* are, without any doubt, perfect expressions of human reasoning. But the hypothetical syllogism is not less perfect; or rather, it is another expression of that reasoning and corresponds no less closely to the operation of the mind. The ordinary syllogism has in the first figure, as disposition of terms: M is P, S is M, S is P. In the mixed hypothetical syllogism this becomes (for the *modus ponens*): "If something is M, it is P; S is M; S is P." This expresses our thought perfectly, and the correspondence is not any less perfect than that of *Barbara* and *Darii*. For *Celarent* and *Ferio* we have a conditional major whose consequent is negative: "If something is M, it is not P." One sees immediately that the syllogism with this major reflects the operation of the mind as well as the categorical form does.

We should also mention two syllogisms of the second figure, *Camestres* and *Baroco*. For negative conclusions these two are no less perfect than the syllogisms of the first figure, especially if they are formulated with a conditional proposition as major. Then we have the *modus tollens*. The disposition of the terms is: "P is M, S is not M, S is not P." As a mixed hypothetical syllogism this becomes, "If something is P, it is M." The negation of M in regard to some S (as in *Baroco*) or to all, makes the conclusion immediately evident. The reduction of these two modes in classical logic is not very natural, and is especially complicated for *Baroco*. The intuition, however, in the hypothetical syllogism belongs, we believe, to the most simple intuitions of the human mind, and a quasi reduction of the categorical form to the hypothetical form takes place naturally in the Thomist doctrine of the conditional propositions.

4. NECESSITY AND INTELLIGIBILITY

The *per se* proposition, under its diverse forms, is the expression of a judgment that affirms a necessary connection between two forms which meet in the same subject, the form of the predicate originating in the form of the subject. As a consequence of this formal nexus, the objective structures that are affirmed as real by the judgment are intelligible and necessary.

We have already said in passing (Chap. II, Sect. 6) that the judgments in necessary matter are of the highest importance, even from the point of view of the theory of knowledge, for they are intelligible precisely by reason of their necessity. We cited in part the words of *Contra gentiles*, II, 55:

The intelligible, as such, is necessary and incorruptible, for necessary things are perfectly knowable by the intellect; whereas contingent things as such are knowable only in a defective manner, because about them we have not scientific knowledge but opinion; hence the intellect has scientific knowledge about corruptibles in so far as they are incorruptible, that is, in so far as they are universal. (Intelligibile in quantum intelligibile est necessarium et incorruptibile; necessaria enim perfecte sunt intellectu cognoscibilia; contingentia vero, in quantum huiusmodi, non nisi deficienter; habetur enim de eis non scientia sed opinio; unde et corruptibilium intellectus scientiam habet secundum quod sunt incorruptibilia, in quantum scilicet sunt universalia.)

The reason for this thesis has become clear to us in the course of this chapter: the necessity of the connection is due to the fact that there is a formal connection; but this same fact is the cause of the intelligibility. Hence, where we have an intuition in a necessary matter, this arises from a formal abstraction. This we have learned by the study of the Thomist doctrine on the structure of the *per se* proposition under its various forms. We shall now study this thesis, that "The intelligible is necessary, and inversely."

The "intelligible" as it is understood here is not only that which is proper to the "understanding of principles" (*intellectus principiorum*) in so far as this is distinguished from science in the strict sense; that is to say, from the "knowledge of conclusions" (*scientia conclusionum*). For then only the principles would be intelligible. No, conclusions deduced by correct reasoning from necessary premises are truly intelligible in the sense we intend here. This is in agreement with the Thomist thesis,

which admits the radical identity of the two powers of the soul, our understanding and our reasoning power (*intellectus* and *ratio*).

St. Thomas says this expressly in *Summa theologiae*, I, q. 79, a. 8, where he demonstrates the thesis just mentioned:

To understand is simply to apprehend intelligible truth; and to reason is to advance from one thing understood to another, so as to know an intelligible truth. . . . But man arrives at knowledge of intelligible truth by advancing from one thing to another . . . and therefore he is called rational. (*Intelligere enim est simpliciter veritatem intelligibilem apprehendere. Ratiocinari autem est procedere de uno intellectu ad aliud, ad veritatem, intelligibilem cognoscendam. . . . Homines autem ad intelligibilem veritatem cognoscendam perveniunt procedendo de uno ad aliud . . . et ideo rationales dicuntur.*)

And in the same work (I-II, q. 5, a. 1, ad 1) we are told:

The intellectual surpasses the rational nature as to the mode of knowing the same intelligible truth; for the intellectual nature [that is, an angel] grasps instantly the truth which the rational nature reaches by the inquiry of reason. (*Intellectualis natura excedit rationalem quantum ad modum cognoscendi eandem intelligibilem veritatem; nam intellectualis natura statim apprehendit veritatem, ad quam rationalis natura per inquisitionem rationis pertingit.*)

Hence, both the principles and the conclusions contain intelligible truth; it is only the manner in which man attains this truth (*modus cognoscendi*) which is different in the two cases. In the first case it is a simple apprehension; in the other there is need of a research, an advance from one truth to another, a kind of movement.

We frequently meet with this difference between the understanding of principles as an immediate intuition, a repose (*quiescere*) and reasoning which, because it is knowledge that is actualized through "movement," is to that extent less perfect.²⁰

But after the reasoning process itself the mind attains this "repose" in the intuition of the intelligible truth; especially if, after the discovery of middle terms, the "movement" has terminated in a critical resolution of the truth to first principles. Then we take in at a glance the whole sequence of intermediary connections and our knowledge of the truth approaches an intuition. The following words are very significant (*Cont. gent.*, I, 57):

Our mental process is reasoning when we pass from one thought to another, as when we infer conclusions from principles. For it does not follow that one

argues or discourses from the fact that he sees how a conclusion follows from its premises, and considers both together; since this happens not by arguing but by making judgments about the things argued; just as knowledge is not material because it judges material things. (Tunc enim ratiocinativa est nostra consideratio quando ab uno considerato in aliud transimus, sicut syllogizando a principiis in conclusiones. Non enim ex hoc aliquis ratiocinatur vel discurrit quod inspicit qualiter conclusio ex praemissis sequatur, simul utrumque considerans; hoc enim contingit non argumentando, sed argumenta iudicando; sicut nec cognitio materialis est ex eo quod materialia diiudicat.)

Scientific conclusions are therefore fully intelligible and our knowledge of them can approach an intuition. Indeed, this knowledge is even called "intellectual vision" (*Sum. theol.*, I-II, q. 67, a. 3):

It is essential for scientific knowledge to have firm adhesion with intellectual vision, for scientific knowledge possesses certitude which results from the understanding of principles. (De ratione scientiae est quod habeat firmam inhaesionem cum visione intellectiva; habet enim certitudinem procedentem ex intellectu principiorum.)²¹

With regard to the conclusions themselves, the necessary is intelligible and, inversely, the intelligible is necessary. If one pays close attention, one can read this thesis on almost every page of the *Posterior Analytics*. It is always the necessary and only the necessary which is intelligible and knowable.

Nevertheless, the text of *Contra gentiles*, II, 55, grants some intelligibility to the contingent, even while calling the contingent "only imperfectly knowable by the intellect." Without doubt if this point be examined, contingents show themselves as not altogether deprived of necessity; whence their intelligibility—the possibility of their being attained by the intellect.

More than once St. Thomas raises the problem whether we know intellectually what is material, singular, contingent. The three questions are interconnected. The problem arises relative to cognition by our intellect, for we undoubtedly know the material, the singular, and the contingent through our senses. Sense knowledge is, naturally and uniquely, directed towards these objects, but our intellectual cognition abstracts from at least material conditions. By this abstraction, it is directly universal, and since the formal nexus includes necessity, the cognition is directed towards this necessity.

Nevertheless we do know contingent things intellectually. The expla-

nation is given in a text part of which we have already seen (*Sum. theol.*, I, q. 86, a. 3):

Contingent things can be considered in two ways; either as contingent, or as containing some element of necessity, since every contingent thing has in it something necessary; for example, that Socrates runs is in itself contingent, but the relation of running to motion is necessary, for it is necessary that Socrates move if he runs. (*Contingentia dupliciter possunt considerari. Uno modo secundum quod contingentia sunt. Alio modo secundum quod in eis aliquid necessitatis invenitur; nihil enim est adeo contingens, quin in se aliquid necessarium habeat. Sicut hoc ipsum quod est Socratem currere, in se quidem contingens est; sed habitudo cursus ad motum est necessaria; necessarium enim est Socratem moveri, si currit.*)

An important thesis is contained in the words, "every contingent thing has in it something necessary." This kernel of necessity establishes the possibility of an intellectual cognition of the contingent. The intellect directly knows the necessary, and therefore universal, relation which is situated in the contingent running of Socrates, namely, the essential relationship of the running to movement. This thesis of St. Thomas is of the greatest importance, especially for the critical part of the theory. For the present let us see the answers to the three questions which are based on this thesis.

First, then, we do know bodies and material things intellectually. *De veritate*, q. 10, a. 4, considers especially the difficulty (which, in this order of ideas, is of less importance) that man knows intellectually by abstraction from matter. Matter itself, says the objection, will therefore not be known. The answer is that matter is nevertheless known under a certain aspect, namely, by its relation to form.

Two other articles (*Sum. theol.*, I, q. 84, a. 1, and *In Boeth. De Trin.*, q. 5, a. 2) are more important for our purpose. They examine the difficulty that matter, as such, is variable, corruptible, and contingent; whereas the necessary alone is knowable by the intellect. That is why the author argues against Heraclitus and Plato. The general answer is that nevertheless there is a true natural science (*scientia naturalis*) which has as its object this variable thing.²² As regards the other explanations we shall touch on only two points of the article in the *Summa*, taking first the conclusion:

We must conclude, therefore, that through the intellect the soul knows bodies by a knowledge which is immaterial, universal, and necessary. (*Dicendum est ergo quod anima per intellectum cognoscit corpora cognitione immateriali, universali, et necessaria.*)

Then we note the third and principal difficulty, which insists precisely on the problem that intellectual cognition attains only the necessary, whereas the corporeal is by nature variable. The answer tells us:

Mutable things have immutable relations or aspects; for instance, though Socrates be not always sitting, yet it is an immovable truth that whenever he does sit he remains in one place. Consequently, there is no reason why we cannot have an immutable knowledge about mutable things. (*Rerum etiam mutabilium sunt immobiles habitudines; sicut Socrates, etsi non semper sedeat, tamen immobiliter est verum quod, quando sedet, in uno loco manet. Et propter hoc nihil prohibet de rebus mobilibus immobilem scientiam habere.*)

Thus the intellect knows, in contingent things and facts, the kernel of necessity there enclosed, the necessity of the invariable relations. It is these latter which precisely are demonstrated in the theses of a science like natural science. But not only do we know, by a universal science, the essential relations of contingent things, we also have a *mediate* intellectual knowledge of these things themselves and their contingent relationships. The *corpus* of *Summa theologiae*, I, q. 86, a. 3, which treats of the question, "Whether our intellect knows contingent things," ends as follows:

Therefore, the contingent considered as such is known directly by sense and indirectly by the intellect; while the universal and necessary principles of contingent things are known by the intellect. (*Sic igitur contingentia, prout sunt contingentia, cognoscuntur directe quidem sensu, indirecte autem ab intellectu; rationes autem universales et necessariae contingentium cognoscuntur per intellectum.*)

Something necessary, then, is demanded in every contingent if it is to be intelligible. The knowledge of the contingent is further discussed in *In Ethica*, VI, lect. 1-3. We call attention to what follows (lect. 1, n. 1123):

Contingent things can be known in two ways. One way is by their universal aspects, the second way is according as they are in some particular thing. The universal aspects of contingent things are immutable and for this reason there can be demonstrations in regard to contingent things, and knowledge of such things pertains to the demonstrative sciences. For natural science does not deal merely with necessary and incorruptible things, but also with corruptible and contingent ones. . . . Contingent things can be considered another way, namely, according as they exist in some particular individual; and then they are variable and do not fall under the scope of intellectual knowledge except through the mediation of the sense faculties. (*Contingentia dupliciter cognosci possunt.*

Uno modo secundum rationes universales, alio modo secundum quod in particulari. Universales quidem igitur rationes contingentium immutabiles sunt, et secundum hoc de his demonstrationes dantur et ad scientias demonstrativas pertinet eorum cognitio. Non enim scientia naturalis solum est de rebus necessariis et incorruptibilibus, sed etiam de rebus corruptibilibus et contingentibus. . . . Alio modo possunt accipi contingentia, secundum quod sunt in particulari; et sic variabilia sunt nec cadit super ea intellectus nisi mediantibus potentiis sensitivis.)

The same doctrine (with a reference to this passage of the *Ethics*) is defended with some less important nuances in *De veritate*, q. 15, a. 2, ad 3 and *Summa theologiae*, I, q. 79, a. 9, ad 3. Concerning the last passage we note that not only natural science but also mathematics, as a science, treats of the necessary relations which are found in particular and contingent things:

Necessary truths are found even among temporal things, of which natural science and mathematics treat. (Necessaria scibilia inveniuntur etiam in rebus temporalibus, de quibus est scientia naturalis et mathematica.)

Contingent things are truly known by the human intellect. They are known *directly* by the intellect inasmuch as they contain necessary aspects or relations; but this is knowledge of the nature considered absolutely and, as abstract, it is universalized in the intellect. To the extent that the things are contingent the sense knows them directly; but the intellect attains them only *indirectly*, that is to say, through the mediation of the sense faculties. Such indirect knowledge presupposes the first intellectual cognition, with which we shall deal again in a moment. Meanwhile, let us note again that the intellectual knowledge of the concrete, particular, and contingent case can be certain, but only when the senses are actually observing. In *In Ethica*, VI, lect. 3, n. 1145, we read:

Such certitude, namely, that a thing cannot be otherwise, cannot be had in regard to contingent things, which can be otherwise. For it is only when they fall under sense experience that we can have certitude about them. (Huiusmodi certitudo, quod scilicet non possit aliter se habere, non potest haberi circa contingentia aliter se habere. Tunc enim solum potest de eis certitudo haberi, cum cadunt sub sensu.)

We have said that for St. Thomas intellectual cognition of the particular case presupposes the understanding of a necessary relation of the nature absolutely considered. The phrase, "through the mediation of the

sense faculties," is explained elsewhere in detail, where St. Thomas expounds his doctrine relative to the intellectual knowledge of single existents.²³

The well-known Thomist thesis, that man has no direct knowledge of the material singular, is enunciated in all its rigidity in *Summa theologiae*, I, q. 86, a. 1:

Our intellect cannot know the singular in material things directly and primarily. (Singulare in rebus materialibus intellectus noster directe et primo cognoscere non potest.)

Naturally, it is conceded that an indirect cognition is possible. It takes place by a "conversion" to the phantasm, an operation which is called a "reflection":

Indirectly, and as it were by a kind of reflection, it can know the singular. (Indirecte autem et quasi per quandam reflexionem potest cognoscere singulare.)

Other passages describe in almost identical terms, but in more detail, this quasi reflection or "return." We here transcribe a passage from *De veritate*, q. 10, a. 5:

The mind knows the singular by a *kind of reflection*, inasmuch as the mind, when knowing its object, which is some universal nature, *returns* to the knowledge of its act, and further to the species which is the principle of its act, and still further to the phantasm from which the species is abstracted. Thus it receives some knowledge of the singular. (Mens singulare cognoscit per *quamdam reflexionem*, prout scilicet mens cognoscendo obiectum suum, quod est aliqua natura universalis, *redit* in cognitionem sui actus, et ulterius in speciem quae est actus sui principium, et ulterius in phantasma a quo species est abstracta; et sic aliquam cognitionem de singulari accipit.)²⁴

This reflection on the phantasm is made possible by the fact that there is in man a continuation between the intellect and the sensitive powers. Immediately before the passage just cited we were told:

The mind reaches singulars *per accidens*, inasmuch as it is connected with the sense powers, which have to do with singulars. (Mens per accidens singularibus se immiscet, in quantum continuatur viribus sensitivis, quae circa particularia versantur.)

In itself the understanding is a view of the necessity of the essential relations, the relations of the nature absolutely considered, of the neces-

sary relations. All these, in entering the intellect, receive there an *esse* which is universal and are there known *directly* and can be affirmed universally. The necessary is, in itself, intelligible, and inversely.

The act of understanding, which is thus identical with a view of a necessary relation, is accomplished *in the intellect alone*; the sense faculties furnish only the material, that is to say, the objective structure or the terms and nexus of the future judgment. For the necessity, the intuition of which constitutes the act of understanding, is precisely the necessity of this nexus. Even though dependent in that way on the sense faculties which furnish the material, this act of understanding is nevertheless direct, for it attains something which was not known by the senses, namely, the necessity. It is because of this intuition that the mind affirms this nexus as real.

In order to know and affirm this same nexus in a singular case, there is required a return to or reflection on the sense data. It is only during this reflection that the intellect knows the singular case as a singular example of the nexus already known universally. This is why this knowledge is indirect, through the intermediary of the sense faculties. Then the affirmation of the singular case is only an application of the preceding universal judgment to the singular case. Thus in *De veritate*, q. 2, a. 6, ad 3:

Man knows individual things by means of his imagination and senses, and hence he can apply the universal knowledge, which is in the intellect, to the particular; for properly speaking it is not the sense or the intellect which knows, but man by means of both. (*Homo cognoscit singularia per imaginationem et sensum, et ideo potest applicare universalem cognitionem quae est in intellectu, ad particulare; non enim, proprie loquendo, sensus aut intellectus cognoscit, sed homo per utrumque.*)

These final words deserve our attention; they are an answer to the difficulty that no one can apply a view to a case which is not known to him in advance. St. Thomas reminds us that it is the same man who applies a necessary and intellectual view, which he already has, to a case which he attains now by his sense faculties. Then and only then is there the "continuity" that is necessary between the intellect and the senses.²⁵

The case we have just seen is that of an application of a universal judgment to a singular realization of the nexus in the nature absolutely considered. It is not *because* this nexus is found in the sense data that the affirmative judgment is made; to make such an application it even suffices that only the subject be given sensitively. No, the affirmation follows *be-*

cause of the insight into the necessity of the nexus; and this insight is the work of the intellect alone which receives its material from the senses. This is true for the universal judgments, but also for the singular judgment affirming a necessary connection, the expression of which (even for the singular case) is a *per se* proposition.

This is valid for a pure application of a universal truth to a singular case. But there is also an infinity of cases where the singular judgment is made *because* the nexus between the subject and the predicate is known by the sense faculties. This is the case of the judgment of observation, the expression of which is a "*per accidens* proposition" and not a "*per se* proposition"—at least it is a proposition about which we do not yet know whether it is *per se*. Such an intellectual judgment supposes also the knowledge, by the intellect, of the objective structure; and it is very remarkable that St. Thomas demands, even for this case, an act of understanding, an intellectual insight of the necessity of a relationship—clearly not of the nexus that is affirmed, for then it would be a *per se* proposition, but of a necessary internal relationship within the forms which designate the subject and the predicate. One might call this the necessity of a lateral connection.

Such a requirement is understood from the words of St. Thomas that "every contingent thing has in it something necessary." This declaration was immediately applied (*Sum. theol.*, I, q. 86, a. 3) to the judgment, "Socrates is running." This is evidently a judgment about a contingent fact, for running is not necessarily connected with Socrates. And the problem raised was this: Is an intellectual cognition of this contingent fact possible? St. Thomas, in his solution, upholds his requirement for intellectual knowledge; he demands an insight of some necessary connection. Here there is no necessary connection between the subject and the predicate, but there is one which is internal to the predicate, for the relation of running to motion is necessary. This fact is necessary and also sufficient to make possible an intellectual cognition of the running of Socrates. We could, of course, have ahead of time the insight into this necessity, we could affirm that nexus as real; but then we would no longer have the case we are actually discussing. We would have only the application of a universal judgment to a singular realization; whereas what we are affirming in our present case is a contingent nexus, the running of Socrates.

Our knowledge of this contingent fact was formulated as follows, as we have seen (*Sum. theol.*, I, q. 86, a. 3): "The contingent, considered as such, is known directly by sense and indirectly by the intellect," and

on the other hand, "The universal and necessary principles of contingent things are known only by the intellect." The difference between the "directly" and the "indirectly" is clearer here. Directly or indirectly, the intellectual knowledge comes from the sense data, which contain the nexus; but in the case of the direct knowledge the affirmation of the universal and necessary nexus is dependent only upon the vision of the intellect; the data are only the matter and serve as motive only for the determination of the content (Chap. I, Sect. 3, B). In the case of indirect knowledge the sensitive intuition of the nexus is also the *reason* for the affirmation and does not merely give the content.

It is clear that these theses, which we have gathered from a phenomenological analysis of St. Thomas's doctrine, will play an important role in the critical part of his theory of the judgment. The Saint always demands, before any affirmation, an intellectual intuition of some necessity, even if there is question of the intuition of a simple contingent fact.

Thus we see again that intelligibility and necessity always go together in perfect correspondence. This necessity is always that of a nexus, and that is why it is very important for the understanding of St. Thomas's theory to presuppose the existence of this nexus in the apprehension.

PART TWO



*The Justification of
the Judgment*

CHAPTER V

The Reflection Preceding the Judgment

IN THE PRECEDING CHAPTERS we tried to gather together and co-ordinate the phenomenological material of the doctrine of St. Thomas on the human judgment. More than once we so nearly touched upon the more properly critical part of the doctrine that it was necessary to break the thread of the exposition. We can now focus our attention entirely upon this critique or justification of the judgment. The richness of St. Thomas's phenomenological analysis makes his critique a deep and detailed one. Use will be made of the results obtained above, but here and there new details, more closely connected with the critique itself, will have to be supplied.

1. THE CAESURA BETWEEN THE APPREHENSION AND THE JUDGMENT

Let us recall some of the characteristics of the caesura found throughout our previous analysis. For simplicity's sake we shall ordinarily consider the affirmative judgment. The human judgment is an affirmation of an already composite intellectual representation containing an objective structure (*Sachverhalt, dispositio rei*). The affirmation says, "So it is in reality." The judgment, then, is preceded by an intellectual representation, data received through the intermediary of the phantasm, from the external senses. The intellectual representation of the objective structure results from the sensible representation. This "presentation" to the mind of its proper object is the primary function of man's senses. It is then the task of the apprehension or first operation of the intellect to register this representation.

This composite representation, however, is not yet the judgment. There is a sharply marked off caesura between the apprehension and the judgment. In this caesura takes place the proper and purely intellectual activity of the human mind, leading to the judgment on the content of the representation. The judgment adds nothing to the content, it only affirms

the objectivity of the structure. The affirmation is the result of a purely intellectual activity. By reason of this activity, the mind discovers the representation to be conformed to the thing (*In Periherm.*, I, lect. 3, n. 9; *Sum. theol.*, I, q. 16, a. 2), or to have a likeness of the thing (*In Met.*, VI, lect. 4, n. 1236), or to have a proportion to the thing (*De ver.*, q. 1, a. 9). Hence, the second operation supposes a return (*reflectitur*) on the first operation, the apprehension.

The treatise *In Boethium De Trinitate* distinguishes four modes of affirmation or assent; all affirmations may be reduced to *per se* known principles, scientific conclusions, probable opinions, and supernatural faith. The last two do not concern us here. Moreover, the third is only a defective participation of the first two. If there is question of scientific conclusions, the reflective activity of the mind will also contain a critical examination consisting in a resolution to principles (*resolutio in principia*). An affirmation of scientific conclusions presupposes not only an affirmation of the principles (with its proper reflection) but also the affirmation of syllogistic principles which likewise has its reflection. We shall touch on this latter at least in passing. The first and most simple case is, therefore, that of the self-evident principles, and of its reflection. These are "immediate judgments."

But there is yet another group of "immediate judgments," those which affirm an observed contingent fact, and those too which "apply" a universal truth to an individual case. Such judgments can be called in a certain sense "immediate," and we shall have to study St. Thomas's theory pertaining to these judgments.

As might have been expected from the doctrine in Chapter IV, Section 4, knowledge of the self-evident principles plays an important part in the reflections leading to these judgments. Again a distinction must be made between the reflections which lead to principles concerning material phenomena and those concerning mental phenomena. To begin, we must take a look at these diverse reflections.

2. THE REFLECTIONS

A reflection takes place during the caesura between the first and the second operation of the human mind. The result of this reflection marks off in a trenchant manner the difference in nature of the two operations. For only in the judgment is actuality (*esse in re*) attributed to the content of the representation. This activity exercised by the critical power of the

mind (*secundum vim intellectualis luminis*) should justify the judgment. We must, therefore, search for the elements of the critical theory of St. Thomas in this reflection.

It has been said (Chap. IV, Sect. 4) that this "return" of the mind on its operation, or on itself, is not movement in the strict sense. We referred the reader in Note 24 to *De veritate*, q. 2, a. 2, ad 2:

This expression, that one who knows himself returns to his essence, is a metaphorical one; for there is no motion in understanding, as is proved in *Physics* VII,¹ hence neither is there strictly speaking any going back or return; but only to this extent is there a process or motion, that from one known thing we arrive at another. In us this takes place by a kind of going back and forth, and in that way there is a going forth and return to our soul, when it knows itself. For first the act of going forth from the soul terminates in the object; and then there is a reflection upon this act and in turn upon the potency and the essence [of the soul], inasmuch as acts are known by reason of the objects and the potencies by reason of the acts. (*Locutio haec qua dicitur, quod sciens se ad essentiam suam redit, est locutio metaphorica; non enim in intelligendo est motus, ut probatur in VII Physicorum; unde nec proprie loquendo, est ibi recessus aut reditus; sed pro tanto dicitur esse processus vel motus, in quantum ex uno cognoscibili pervenitur ad aliud; et in nobis fit per quemdam discursum, secundum quem est exitus et reditus in animam nostram, dum cognoscit seipsam. Primo enim actus ab ipsa exiens terminatur ad obiectum; et deinde reflectitur super actum et deinde super potentiam et essentiam, secundum quod actus cognoscuntur ex obiectis et potentiae per actus.*)

The reflection is then only a metaphorical movement; it does not suppose, at least in the intellect, any "alteration"; it need not cause any change in the intellect. It consists in a process which supposes and contains, either once or many times, a going forth (*exitus*) and a return (*reditus*). It supposes a going forth, because the first operation of the mind has its term in the exterior object; and hence is a metaphorical movement towards the outside. There then supervenes the first reflection, the first return, of the mind on its first act; it is a return, because it is a metaphorical movement back to this operation of the mind itself. This return itself can be protracted from the operation to the potency; and still further, from the potency to the essence. But in that case we must of necessity go through all the intermediary steps. First of all, the reflection is a return upon an *operation* of the cognoscitive faculties; it makes possible the passage from one knowledge to another, and from this latter to a third. But the process always begins with a cognition which is an apprehension of an *exterior object*; after which apprehension there fol-

lows the reflection. The first result of this reflection is the knowledge of the act, but the act is not known except from the *content* of the act. It is only then that we can have a knowledge of the faculty, "inasmuch as acts are known by reason of the objects and the potencies by reason of their acts."

The reflective activity of the mind can then develop in different ways, or in different directions, according to the differences of the faculties. In St. Thomas's theory this reflective activity is very extensive. It is only one type of reflection which causes the transition from the apprehension to the judgment concerning a material object. A global view, but one rich in information, is given us in *In Sententias*, III, D. 23, q. 1, a. 2, ad 3. This answer resolves the difficulty, How is it possible to know a habit by the mere presence of its act, since as a moral virtue this habit does not reside in the intellect, but in the affective part of the soul?² St. Thomas takes this occasion to speak about reflective knowledge in general. The principal division of possible reflections is the following:

The soul's reflection on itself or on things within itself by means of cognition takes place in a twofold way. *In one way*, inasmuch as a cognoscitive faculty knows its own *nature*, or things within itself, and this belongs *only* to the *intellect* whose function is to know the quiddities of things. . . . *In another way* the soul reflects upon its acts by knowing *those* acts as existing. (Animam reflecti per cognitionem supra seipsam, vel supra ea quae ipsius sunt, contingit dupliciter: *uno modo* secundum quod potentia cognoscitiva cognoscit *naturam* sui, vel eorum quae in ipsa sunt, et hoc est *tantum intellectus* cuius est quidditates rerum cognoscere. . . . *Alio modo* anima reflectitur super actus suos cognoscendo illos actus esse.)

We have here a division of reflection into two categories. One leads to the knowledge of the *nature* of the operation to which the mind returns, and is reserved to the intellect alone. To this category belongs the reflection which leads to a direct judgment on an apprehended quiddity. The other category of reflection leads to the knowledge of the actual presence of an operation. This reflection does not belong exclusively to the intellect, but is found, with some restriction, in purely sensible knowledge. The text continues:

This cannot take place in such wise that a potency using a corporeal organ reflects upon its own act, for it would be necessary that the instrument it uses, in knowing itself, be between the potency itself and the instrument it used in first knowing. However, a potency using a corporeal organ can know the act of another potency inasmuch as the impression of a lower potency can influ-

ence the superior potency, just as by the common sense we know the act of vision. On the other hand, since the intellect is a faculty not using a corporeal organ, it can know its own act, inasmuch as it is affected in some manner by the object and is informed by the species of the object. (Hoc autem non potest esse ita, quod aliqua potentia utens organo corporali reflectatur super actum proprium, quia oportet quod instrumentum quo cognoscit se, caderet medium inter ipsam potentiam et instrumentum quo primo cognoscebat. Sed potentia utens organo corporali potest cognoscere actum alterius potentiae in quantum impressio inferioris potentiae redundat in superiorem, sicut sensu communi cognoscimus visum videre. Intellectus autem cum sit potentia non utens organo corporali potest cognoscere actum suum, secundum quod patitur quodammodo ab obiecto et informatur specie obiecti.)

In this reflection the intellect can know its own proper operation, the sense cannot. But the sense operation can be known by another sensitive faculty. Thus the "common sense" (*sensus communis*) knows the operations of the external senses. This operation of the "common sense" is also a result of a reflection of the soul on the things within it. Note also that the human intellect, in reflecting on the actuality of its operation, knows this latter in its dependence on the object (*secundum quod patitur ab obiecto*).

De veritate, q. 1, a. 9, develops the same doctrine: the intellect alone in reflecting can know the nature and the actual presence of its operations; the senses cannot know the nature, but can indeed know the presence, of their operations. This power is attributed in general to the senses without naming the common sense. In *In Ethica*, IX, lect. 11 (n. 1908), we are told in general: "We sense that we sense, and we understand that we understand" (*sentimus nos sentire et intelligimus nos intelligere*). Likewise, *Summa theologica*, I, q. 78, a. 4, ad 2, and q. 87, a. 3, ad 3, emphasize this difference between intellect and sense and attribute to the common sense the perception of the other sense operations.³

The reflection in which we intuit, whether sensitively or intellectually, the presence of a cognition can lead to the important judgment which Descartes formulated: "I think, therefore I am" (*cogito, ergo sum*). We shall make a special study of this reflection in Chapter XII. We now give our attention to another intellectual return on a known datum; namely, that which leads to the knowledge of the nature and conditions of this cognition. The text from *In Sententias*, III, continues:

As is said in the third book of *De anima*, the intellect knows itself just as it knows other things, because it knows itself by means of a species, not indeed of itself, but of the object, and this species is its form; by reason of

this form it knows the nature of its act, and by reason of the nature of the act, the nature of the knowing faculty; and by reason of the nature of the faculty, the nature of the essence, and in consequence the nature of the other faculties. Not that it has diverse likenesses of all these, but because in its object it not only knows the *ratio* of truth, whereby it is the object [of the intellect], but every *ratio* it contains, hence also the *ratio* of good; and therefore by reason of that same species it knows the act of the will and the nature of the will and in like manner also the other faculties of the soul and their acts. (Intellectus autem, ut dicitur in III *de Anima*, sicut alia, cognoscit seipsum, quia scilicet per speciem non quidem sui, sed obiecti, quae est forma eius; ex qua cognoscit actus sui naturam, et ex natura actus naturam potentiae cognoscentis, et ex natura potentiae naturam essentiae, et per consequens aliarum potentialium. Non quod habeat de omnibus his diversas similitudines, sed quia in obiecto suo non solum cognoscit rationem veri, secundum quam est eius obiectum, sed omnem rationem quae est in eo, unde et rationem boni; et ideo consequenter per illam eandem speciem cognoscit actum voluntatis et naturam voluntatis, et similiter etiam potentias animae et actus earum.)

This, according to St. Thomas, is the solution to the problem how the nature of a habit residing in the affective part of the soul can, nevertheless, be known by the mere presence of its act. It is done by reflection, and the new cognition which arises has no need of a new likeness other than that of the exterior object of the apprehension. A species of the object is required for the cognition, but then, *in* this apprehension, objectively considered, the intellect sees the diverse formalities (*rationes*); for example, the *ratio* of truth for the intellect and the *ratio* of good for the will.

Here we are interested only in the *ratio* of truth which is discovered by this reflection. For this is the "conformity" of the apprehension with the thing; this is the cause of the affirmative judgment on the data.⁴ Here then is the process of this reflection: first of all and directly, the intellect informed by the species knows the object. It *possesses* the likeness, as we are told in these passages, but it does not yet *know* that it is a likeness of the thing. This latter is discovered only by returning to the apprehension during the caesura that separates the apprehension from the judgment. From the object represented, hence from the *content* of the apprehension, the intellect knows the nature of the act, that is, of apprehension; *from* the nature of this act, the nature of the faculty; *from* the nature of the faculty, the nature of the essence itself. We can presume even now that the diverse phases of the complete reflective process do not unfold themselves with equal facility; the last phase is even described as very difficult (*Sum. theol.*, I, q. 87, a. 1):

There is further required a careful and subtle inquiry. Hence, many are ignorant of the soul's nature, and many have erred about it. (Requiritur diligens et subtilis inquisitio. Unde et multi naturam animae ignorant, et multi etiam circa naturam animae erraverunt.)

We shall come back to this again. Even the first phase does not unfold easily except for a certain number of immediate propositions. The second phase, in which the nature of the faculty is known from the nature of the act, is easier; it necessarily goes together with the preceding, but, as the text says with such emphasis, it is another phase which (in nature, if not in time) is posterior to the knowledge of the act; it is a *second* knowledge, which results from the first.

Notice again what is said in *In Sententias*, III, D. 23, q. 1, a. 2, ad 5:

As was said, all the knowledge which the intellect has of what is in the soul is founded upon this, that the soul knows its object, which has a phantasm corresponding to it. (Sicut dictum est, tota cognitio qua cognoscit intellectus ea quae sunt in anima, fundatur super hoc quod cognoscit obiectum suum, quod habet phantasma sibi correspondens.)

Although the mind begins with the knowledge of a material object, it need not remain immersed in the material, for by an act of reflection it can rise above this origin:

For it is not necessary that knowledge stop with the phantasms, but that knowledge originate from the phantasms, and that it transcend the imagination in some things. (Non enim oportet quod solum in phantasmatibus cognitio stet, sed quod ex phantasmatibus sua cognitio oriatur et quod imaginationem in aliquibus relinquat.)

The whole process is *not* a reflection on the phantasm; the phantasm is needed only because man in this life has to read the object of his apprehension in a phantasm, and hence cannot think without making use of the phantasm. But what is described here to us is a reflection on the content of the intellectual apprehension.

We see then that the reflection on the knowledge of material things, and it alone, opens the way to a series of operations and of diverse cognitions. First of all, to the knowledge of the *ratio* of truth in the object, and to the affirmation of the reality of the objective structure represented in the apprehension. Next the reflection leads to other cognitions that transcend the imagination. These cognitions form the beginning of the theory of intellectual knowledge itself, and of metaphysics. To attain this end

it is necessary and sufficient that the mind institute a further reflection on the noëtic nature of the act which knows the material object in the phantasm. It is especially to be noted that there is no need of a new species.

The process as described up to now, we repeat, does not contain as yet a reflection on the phantasm; the phantasm is here necessary only to excite, and supply the object for, the first intellectual knowledge. However, it remains necessary because in this life the human intellect depends on the phantasm both for the origin of the apprehension and for the use of the knowledge so gained (Chap. I, Sect. 3, B and C). The reflective process, as described thus far, consists in a return on the intellectual apprehension alone.

But there is another reflection that goes further, a return on the origin of the apprehension. We have already met it in speaking of the conditions of intellectual knowledge of material singulars and of a contingent objective structure (Chap. IV, Sect. 4). Let us recall some of the data we then saw. As a condition of human knowledge of singulars of the material world it was required (*De ver.*, q. 10, a. 5):

The mind knows the singular *by a kind of reflection*, inasmuch as the mind, when knowing its object, which is some universal nature, *returns* to a knowledge of its act, and further to the species which is the principle of its act, and *still further* to the phantasm, from which the species is abstracted; and thus the mind acquires some knowledge of the singular. (*Mens singulare cognoscit per quamdam reflexionem*, prout scilicet mens, cognoscendo obiectum suum, quod est aliqua natura universalis, *redit* in cognitionem sui actus, et ulterius in speciem quae est actus sui principium et *ulterius* in phantasma, ex quo species est abstracta; et sic aliquam cognitionem de singulari accipit.)

And we have seen (*loc. cit.*) that this reflection of the intellect on the sense data was made possible by a certain "continuation" between the diverse faculties of man:

The mind reaches singulars *per accidens*, inasmuch as it is connected with the sense powers, which have to do with singulars. (*Mens per accidens singularibus se immiscet, in quantum continuatur viribus sensitivis, quae circa particularia versantur.*)

This reflection also begins by a return of the intellect, on its proper operation, which attains the material quiddity which is its object; but now the mind reflects further (*ulterius*) on the origin of the apprehension, and its dependence on the phantasm; and this latter is necessarily

singular, since it is a sense cognition of a singular instance. The intellectual cognition, which is the starting point of the reflection, is universal (*aliqua natura universalis*); to concretize this universal cognition and make of it a singular, it is necessary that the reflection be prolonged, and penetrate to the phantasm which is the source of the universal cognition. The possibility of this process is founded on the "continuation" of the intellect with the sense faculties, a continuation which consists in this, that it is the *man* who senses and thinks. We repeat the words of *De veritate*, q. 2, a. 6, ad 3:

Man knows individual things by means of his imagination and senses, and hence he can apply the universal knowledge, which is in the intellect, to the particular; for properly speaking it is not the sense or the intellect which knows, but man by means of both. (*Homo cognoscit singularia per imaginationem et sensum, et ideo potest applicare universalem cognitionem quae est in intellectu, ad particulare; non enim, proprie loquendo, sensus aut intellectus cognoscit, sed homo per utrumque.*)

The knowledge of the singular instance is then an "application" of a universal cognition to this singular case; and thus the *intellectual* cognition of a singular case has a new, direct dependence on the sense data; at least when there is question of a material object.⁵

This new reflection which penetrates to the sense source of the apprehension covers two cases. The first has to do with a singular instance which is a realization of a universal structure, or rather of a relation of the nature considered absolutely. This singular structure is itself intrinsically necessary and for knowledge of it a reflection which penetrates to the phantasm is sufficient. However, *per accidens*, the phantasm may be so complicated that the reflection may have to penetrate to the actual perception of the external senses.⁶

But there is also another case which we have already seen (Chap. IV, Sect. 4), namely, that of a contingent objective structure. Here the reflection must penetrate, not only *per accidens* but *per se*, to the actual perception of the external senses; a reflection on the phantasm alone does not suffice. For, in consequence of the contingency of the nexus, we can no longer, without actual external perception, here and now say with certitude, "Socrates is running." Even for this case, however, as we have seen, St. Thomas demands that a necessary connection be discovered for the intellectual cognition which is expressed by a proposition; evidently a discovery by the initial reflection, for example, the relation between "run-

ning" and "moving." This we called a "lateral connection." The reflection begins, then, by the intellectual perception of this intelligible relation, but, if we want to have certitude that Socrates is actually running, the reflection must be extended to the external perception; then and then alone, certitude of the intellectual judgment is possible (*In Ethica*, VI, lect. 3, n. 1145):

Such certitude, namely, that a thing cannot be otherwise, cannot be had in regard to contingent things, which can be otherwise. For it is only when they fall under sense experience that we can have certitude about them. (*Huiusmodi certitudo, quod scilicet non possit aliter se habere, non potest haberi circa contingentia aliter se habere. Tunc enim solum potest de eis certitudo haberi cum cadunt sub sensu.*)

This reflection, when prolonged where necessary in the same direction, gives three judgments about the dispositions of material things: firstly, a necessary and universal judgment; secondly—supposing the first—a singular judgment on this necessary relation; finally—supposing the perception of a lateral connection—a judgment on a contingent actual relation. The first phase, then, is either unique or at least precedes the others. These results come from a combination of the doctrine of St. Thomas on the intelligibility of the necessary, and of the necessary alone, with the doctrine on the reflection of the mind which must precede the judgment.

A. Other Results of the Reflection. The reflection, after beginning with the content of the representation, can then set out on another path. In knowing the nature of the apprehensive act, it discovers the nature of the apprehensive faculty, the intellect; in reflecting on the result of this discovery, which is the judgment pronounced by this faculty, it can lead to another judgment, a judgment whose object is this result, a judgment of the theory of knowledge, and even a judgment of metaphysics. Thus the mind finds itself at the origin of other sciences.

In like manner, the reflection which reaches to the sense data can in turn take another direction and perceive the nature of the sense faculties. This is what we read in the words already cited of the article of the *Sentences*: "The intellect knows . . . as a consequent [the nature of] the other faculties." (*Intellectus cognoscit . . . per consequens [naturam] aliarum potentiarum.*)

The words refer especially to the will, because the habit of virtue was the object under discussion, but they can doubtless be understood of the

sense faculties also. A reflection which attains the data of these faculties should also, provided it directs its attention to these objects as sensed, discover the nature of these faculties; for this reflection reveals to the mind that the human intellect depends upon these data. This is the meaning of the final words: "inasmuch as it is acted upon by the object and informed by the species of the object." (*secundum quod patitur quodammodo ab objecto et informatur per speciem obiecti.*)

The mind, then, knows its dependence on the object; but the intellect depends on this object through the intermediary of the imagination and the external senses. A reflection that considers the object of these faculties should reveal their nature to the intellect.

But the beginning of all these processes is always a reflection on the content of the intellectual apprehension, the reflection which gives an understanding of the nature of the intellective act and thus leads to a universal judgment on the structure of a material object. This makes us recall the words we quoted in the very beginning of this work (*De ver.*, q. 10, a. 6, *sed contra* 2):

All our knowledge in its origin consists in becoming aware of the first indemonstrable principles. Our knowledge of these arises from sense experience as is made clear at the end of the Posterior Analytics. (Omnis nostra cognitio originaliter consistit in notitia primorum principiorum indemonstrabilium. Horum autem cognitio in nobis a sensu oritur, ut patet in fine Posteriorum.)

The final chapter of the *Posterior Analytics* treats of the origin of the knowledge of these principles in the sense data. The expressions, especially the ones we have italicized, may seem very strong. It seems however that they should be taken literally. What we know with certitude in the first place are the first principles concerning material things; while for singular judgments (whether necessary or contingent) a further reflection is required; and for metaphysical and noetic judgments still another reflection is needed.

B. Summary. The diverse reflections on a single apprehension can, then, lead to many different judgments. We name the principal ones. The first is always and necessarily the judgment which affirms as necessary and objective the structure given in the representation. This reflection can be prolonged in the same direction and so lead to judgments on singular instances and on contingent facts.

The intellect considers these data and judges, "So it is in reality." This

is a judgment on "what has been received" and comes from the critical power of the intellectual light after an inspection of the content of the apprehension, or data. Then the intellect, according to the texts we have analyzed at length, knows—in the data—the *ratio* of truth (*In Sent.*, III, D. 23, q. 1, a. 2, ad 3), or the "conformity" to the thing (*De ver.*, q. 1, a. 9; *In Periherm.*, I, 3), or the "truth" (*Sum. theol.*, I, q. 16, a. 2; *De ver.*, I, 9), or the "proportion" (*De ver.*), or the fact that the data are a "likeness" (*In Met.*, VI, lect. 4). The intellect sees all this in discovering the nature of the act (*In Sent.*, *De ver.*). In all these texts we have to do with one and the same reflection, the one which leads from an apprehension to a judgment on its content; it is this content which is always examined, for acts are known from their object.

Let us note again, as we have seen in Chapter IV, that prior to the judgment we must have a perception of a necessary connection. For the first judgments this necessary nexus is that of the objective structure itself which will be affirmed. For these judgments the consideration of the content alone of the data is already decisive. If this reflection is then prolonged in the same direction, towards the origin of the apprehension, then judgments on singular instances of a universal truth and on contingent facts can follow.

But the reflection can take another direction, it can be applied to the nature of the faculties. This leads to judgments on their nature. We shall see that this in turn can be done in different ways. The mind can fix its attention on the *metaphysical* nature (this reflection, however, involves difficulties), and it can reach to the very essence of man and of his soul. But the reflection can also be directed to the *noetic* nature of the faculties (this is an easier process); then we arrive at *universal* noetic and metaphysical principles.

The reflection can also be directed to the operations which are in the affective part of the soul, but these latter are outside our scope. It can turn to the nature of the sense operations and the sense faculties; and here again we must distinguish between the metaphysical and the noetic nature. Finally, the mind, by reflecting, can attain to the *actuality* of the operations, and thus arrive at judgments such as the "I think, therefore I am" (*cogito, ergo sum*) of Descartes.

But preceding all this, as a starting point and as a permanent foundation, there is always the content of the apprehension of a material thing; a new "likeness" is excluded by St. Thomas. We were not wrong in saying that in St. Thomas reflection is very fertile for knowledge.

3. ERRONEOUS INTERPRETATIONS OF REFLECTION

Before examining more profoundly the different groups of judgments which follow the different reflections, it is necessary to consider some erroneous interpretations of this Thomist reflection. This study will make clearer the intention of St. Thomas. In this section we shall see two obvious errors. The following section will be devoted to the famous article *De veritate*, q. 1, a. 9, which has occasioned more subtle errors.

A. *In General, There Is No Question of Philosophical Reflection.* Some neoscholastic philosophers have understood the reflection of which *De veritate*, I, 9, speaks as a philosophical reflection proper to the mind when it is occupied with the theory of knowledge. Boyer, in an article already mentioned,⁷ has decisively refuted this opinion. St. Thomas there expounds the difference between sense cognition and intellectual apprehension on the one hand, and on the other, the difference between the intellectual apprehension and the judgment. Boyer has demonstrated that the question necessarily concerns *every* judgment. He has also shown the perfect parallelism of this text with those of *In Metaphysicam*, VI, 4, and *Summa theologiae*, I, q. 16, a. 2, to which we have often referred; and, to some extent, with that of *Contra gentiles*, II, 59, where we are told so clearly of this diversity between every judgment of the human intellect (even the most simple and least philosophic judgment) and the other cognoscitive operations.

We proved above (Chap. I, Sect. 1) that the same doctrine is found in *In Perihermeneias*, I, 3; and it is found confirmed by numerous texts which describe the caesura between the first and second operations of the human mind, the caesura in which the mind returns upon the data of the apprehension in order to judge them. This description also refers to every judgment, even the most simple.

Clearly, there are judgments which are the fruit of a philosophical reflection, and these are not excluded by this theory. The texts which we analyzed contain such philosophical judgments and a philosophical theory of knowledge; but the present theory refers to *every judgment*. And it demands a reflection before any and every judgment, even for the most simple one, provided it be truly a judgment and not an opinion lightly enunciated. It demands a reflection even for a judgment on a simple observation. For this latter, as other texts tell us, the reflection needed is more prolonged than that which leads to a first principle.

The reflection, then, of the Thomist theory is not, in general, a philosophical reflection but a reflection proper to man in his daily life without philosophical preoccupation, but nevertheless with a naturally critical attitude.

B. *There Is No Question of a Comparison.* This second interpretation of the Thomist reflection is not found, as far as we know, among Scholastics, but among other philosophers in their interpretation of the Scholastic doctrine. It comes to this, that the reflection would consist in a comparison of the content of the apprehension with the thing and by this comparison the conformity with the thing would be recognized and thus there would result the judgment, "So it is (or is not) in reality." There is no need to prove that as a critical method such an attempt would be an absurdity. No philosopher of any importance would for a moment take into consideration such an absurdity. Moreover, such a thing would not be a "reflection" in the sense of St. Thomas, a return of the mind towards itself and its operation, a return of the mind which in the apprehension has "gone forth" towards the object. Instead, it would be a second "going forth."

There is, however, a text which does seem to speak of "comparison," a text which to an inattentive reader could suggest this method as the one meant. This is why we insert a word on the meaning of *comparatio* in St. Thomas, a meaning which must be kept in mind elsewhere. Here is the text in question (*Cont. gent.*, I, 59):

The non-complex in itself is neither equal nor unequal to the reality, since equality and inequality imply a *comparatio* and the non-complex in itself contains no *comparatio* or *application to reality*. Wherefore in itself it cannot be said to be either true or false; but only the complex which contains a *comparatio of the non-complex to the reality*, expressed by composition or division. (Incomplexum, quantum est de se, non est rei aequatum nec rei inaequale; cum aequalitas et inaequalitas secundum comparationem dicantur; incomplexum autem, quantum est de se, non continet aliquam *comparationem* vel *applicationem ad rem*. Unde de se nec verum nec falsum dici potest; sed tantum complexum, in quo designatur *comparatio incomplexi ad rem* per notam compositionis aut divisionis.)

This passage, like many others, describes the difference between the first and the second operations of the mind. Between these two operations occurs the reflection which results in the judgment. Now the final

words italicized by us seem to consider this reflection as a comparison, a comparison between the noncomplex and reality; for this is what the judgment expresses. If *comparatio* had the sense of "comparison," the last sentence would indeed contain the absurdity which is attributed at times to Scholasticism. But we should not here translate *comparatio* by "comparison." The preceding words clearly indicate this. There we are told that the first operation does not contain a comparison or application to reality. Now these words explain the meaning of *comparatio* by a synonym, namely, "application." If, then, in that last sentence we understand, as we should, the *comparatio ad rem* as *applicatio ad rem*, we read there the difference, so classic in St. Thomas, between the two operations: the first contains the objective structure only as represented; the second says, "So it is," applying the representation to the thing; there is no question at all of a "comparison with the thing." A comparison, as a means of reflection, is not excluded by the words of this text, but neither is it indicated; the text is silent on the means of the reflection. And so an attentive consideration of the whole passage already suffices to reject the erroneous translation of *comparatio* by "comparison"—without mentioning the absurdity supposed by such a translation.

The meaning of the word *comparatio* as found in the beginning of the passage (and at the same time the words *aequalitas* and *inaequalitas* in the context) is now clear: it signifies a "setting up of a relationship" (by the mind) of the *incomplexum* with the thing. That the word *comparatio* in St. Thomas has this meaning, or a similar meaning, is proved by innumerable texts. Without doubt, he also uses it in the sense of "comparison," but *comparare* and *comparatio* have more often the sense of "setting up a relationship," with the nuance of "considering" (in the mind), or "knowing as in relation with." Consequently, *comparatio* has the general meaning of a certain ratio or relation which enters into a proportion or analogy.⁸

4. THE REFLECTION OF *De veritate*, Q. 1, A. 9

The reflection which leads to a judgment is, then, not always a philosophical reflection. It does not consist in a comparison of the content of the apprehension with the object. It is only a return of the mind on the first operation itself, and it is in itself that the intellect finds the first justification of its judgment. But even in this conception, the reflection has also been the object of certain other erroneous interpretations con-

cerning the "nature of the act" and the "nature of the active principle" of which the article of *De veritate* speaks.

A. *General Content of the Article.* The article compares sense knowledge and intellectual knowledge. In both cognitions truth is found as a resultant of the act (*consequens actum*) in so far as this act has a proportion to reality. But it is reserved to the intellect alone to know this truth or proportion to the thing; that is to say, to know its presence. It does not yet know it in the first operation. The intellect arrives at this knowledge only by a reflection on this first operation. This reflection is proper to the intellect; for though in both faculties, the sense as well as the intellect, there is a "return," still in the senses this return is incomplete, whereas in the intellect it can be complete. As we have seen above in other passages, the incomplete return gives only a knowledge of the act such that it can be said that the sense senses itself sensing, and the intellect knows its act. But the reflection proper to the intellect by means of which the intellect *knows* that its act is true, or conformed to the thing—and this is the reflection required for every judgment—is a complete return, that is to say, one which reveals to the intellect the nature of its act, and through this its own nature. It is by reason of its knowledge of this nature that the intellect *knows* that, in the preceding representation, it possessed the truth.⁹

On this part of the interpretation of *De veritate*, q. 1, a. 9, we believe that the research of Boyer has eliminated any differences of opinion; and the numerous texts which we have analyzed or cited to illustrate and develop this interpretation have fully confirmed his results. But this uniformity of opinion does not exist in the further analysis of this knowledge of the nature of the act. And yet the meaning of the text seems to be clear.

B. *Metaphysical Nature and Noetic Nature.* To begin with, let us see the main passage:

Truth is known by the intellect inasmuch as the intellect reflects upon its act; not only inasmuch as it knows its act, but inasmuch as it knows the relationship [proportion] of its act to the thing, which relationship cannot be known unless [at the same time] there is known the nature of the active principle, which is the intellect itself, whose nature it is to be conformed to things; hence the intellect knows truth inasmuch as it reflects upon itself.¹⁰ (*Cognoscitur autem [veritas] ab intellectu secundum quod intellectus reflectitur*

supra actum suum, non solum secundum quod cognoscit actum suum, sed secundum quod cognoscit proportionem eius ad rem; quod [quae] quidem cognosci non potest nisi cognita natura ipsius actus; quae cognosci non potest nisi cognoscatur natura principii activi, quod est ipse intellectus, in cuius natura est ut rebus conformetur; unde secundum hoc cognoscit veritatem intellectus quod supra seipsum reflectitur.)

We already know that the new knowledge which justifies the transition from the pure representation to the judgment consists in the discovery of the representation's conformity, its truth or proportion to the thing. Here is described for us the condition which must be fulfilled in order to attain this end: one must know the nature of the act (of apprehension) and also the nature of the active principle, the intellect—a knowledge of which is simultaneously acquired with the knowledge of the act.¹¹

But a superficial consideration of this text leads to a difficulty which, in view of other theses of St. Thomas, might seem almost insoluble. In 1921, the difficulty was formulated by Roland-Gosselin, as follows:

If this teaching causes a difficulty, it is because of the doctrine maintained by St. Thomas in other places concerning the manner in which the intellect knows its own nature. In those places, he seems to say that this comes only after a long abstract study and by way of conclusion; whereas in our present passage, so it seems, he would have it that the intellect immediately and intuitively has an awareness of its own quiddity. Here, then, we have an historical problem and a philosophical problem to which it seems there have been found no satisfactory solutions.¹²

And in fact the difficulty, at first sight, does seem insoluble. On the one hand, St. Thomas demands, for every judgment, the knowledge of the truth of the apprehension, and for this knowledge he demands knowledge of the nature of the act, which is always accompanied by knowledge of the nature of the faculty; and on the other hand, this knowledge of the nature seems to be acquired only by an abstract study, and what is more, "by way of a conclusion," which evidently presupposes some judgments.

Nevertheless, there is a satisfactory solution, and Boyer (*loc. cit.*, p. 440) indicated it in 1924. Indeed, the solution is not even difficult: it is not the whole nature of the apprehension and of the intellect which has to be known, it is only one of their aspects which must be made clear, namely their character, respectively, of representing and of being the faculty of representing reality. Boyer reminds us that:

[the intellect] in this manner does not apprehend its simplicity nor its immateriality, nor any other of its prerogatives. It has to enter on a long reasoning process to discover these.

But it seems necessary to insist on this point more at length. Certainly St. Thomas does not consider as trifling the difficulties inherent in the manner in which the intellect knows its own nature. We have already cited the words of *Summa theologiae*, I, q. 87, a. 1:

But as regards the second kind of knowledge, the mere presence of the mind does not suffice, and there is further required a careful and subtle inquiry. Hence many are ignorant of the soul's nature, and many have erred about it. (Sed ad secundam cognitionem de mente habendam, non sufficit eius praesentia, sed requiritur diligens et subtilis inquisitio. Unde et multi naturam animae ignorant, et multi etiam circa naturam animae erraverunt.)

This "second kind of knowledge" is the knowledge of the universal nature of the soul. The first knowledge was that of the existence of the individual soul, and this knowledge is very easy; it is an experimental knowledge, a perception which is joined to the internal perception of the act, and for this knowledge the presence of the mind itself is sufficient:

Socrates or Plato perceives that he has an intellectual soul because he perceives that he understands. (Socrates vel Plato percipit se habere animam intellectivam, ex hoc quod percipit se intelligere.)

We called this "perception" an experimental knowledge; St. Thomas does the same (*De ver.*, q. 10, a. 8, ad 8 in contr.¹³):

To this extent the knowledge of the soul is most certain, that everyone *experiences* in himself that he has a soul and that the acts of the soul are present in him; but to know what the soul is, is most difficult. (Secundum hoc scientia de anima est certissima, quod unusquisque in se ipso *experitur* se animam habere, et actus animae sibi inesse; sed cognoscere quid sit anima difficillimum est.)

The difficulty of knowing the essence of the soul is certainly not minimized.

Universal knowledge of the powers, or faculties, of the soul implies similar difficulties.¹⁴ We shall only mention the problems: whether the potencies are really distinct from the substance of the soul; how they flow from this substance; whether and how they are distinct among themselves;

whether they are material or spiritual and, if a distinction is to be made, which potencies belong to the one category and which to the other; then there is the problem whether a distinction is to be made between the understanding (*intellectus*) and the reason (*ratio*), between the "inferior" and the "superior" reason; whether a distinction must be made between the agent intellect and the possible intellect; and the question whether these are potencies of the soul itself. One recalls the epic controversy with the Averroists. If we apply the criterion of St. Thomas himself, "many have erred," we must admit in truth that the solution of these problems is not known intuitively, but rather "there is further required a careful and subtle inquiry." These problems concerning the nature of the potencies cannot, then, be supposed as solved before any certain judgment can be made on anything.

But all of these questions concern the *metaphysical* nature of these potencies. The question always is, How are they *being*? Evidently all problems of this kind are not equally as difficult to solve. One of these metaphysical problems concerning the ontological nature of the act and of the habit ought to be quite easy to solve. We read in *De spiritualibus creaturis*, a. 11, ad 1:

Whatever may be said about the potencies of the soul, no one, unless he is insane, ever is of the opinion that the habits and the acts of the soul are identified with the essence of the soul. (*Quidquid dicatur de potentiis animae, tamen nullus umquam opinatur, nisi insanus, quod habitus et actus animae sint ipsa eius essentia.*)

But, generally speaking, the metaphysical questions concerning the potencies of the soul all have their own difficulties. However, in *De veritate*, q. 1, a. 9, there is no question of a metaphysical problem. If the knowledge of the nature of the act and of the active principle is demanded, it is not to know how this act and this active principle are *being*; there is question only of knowing something of their relation to the thing, of their "conformity." The nature here is not the "metaphysical nature" but the "noetic nature" (*in cuius natura est ut rebus conformetur*). And this noetic nature of the active principle, the intellect, is known immediately once the noetic nature of its act or operation is known. And it is known uniquely through (*ex* or *per*) the noetic nature of this act. This is a theory dear to St. Thomas.

His doctrine, indeed, is quite familiar. These faculties are specified by their acts, and the acts by their objects. But St. Thomas defends, with

equal vigor, the position that the order of our knowledge of this triad is the same. We have already met this thesis above. Let us examine it a little more closely. On the potencies of the soul, we read in the *In De Anima*, I, lect. 8, n. 111:

Potencies are known by reason of the acts, and the acts by reason of the objects; and hence it follows that the act is placed in the definition of the potency and the object is placed in the definition of the act. (Potentiae enim cognoscuntur per actus, actus vero per obiecta; et inde est, quod in definitione potentiae ponitur eius actus, et in definitione actus ponitur obiectum. Cf. *Ibid.* II, lect. 2, n. 235.)

This same doctrine is taken for granted, with reference to the intellect, in *Summa theologica*, I, q. 14, a. 2, ad 3:

For it is manifest that by knowing the intelligible object it [the intellect] understands also its own act of understanding, and by this act knows the intellectual faculty. (Manifestum est enim quod ex eo quod [intellectus noster] cognoscit intelligibile, intelligit ipsum suum intelligere, et per actum cognoscit potentiam intellectivam.)

This is said to be manifest, and rightly so; it is the means, and the unique means, of determining the nature or specific character (for the intellect the noetic character) of a potency. In fact, if we ask, "What is the intellect?" and if we want to give an answer which is immediately understood, we must answer, "It is the faculty of understanding (*intelligere*)."

But this is a clear answer only if we know what it is "to understand" (*intelligere*). Then, and then only, but also immediately, is the noetic nature of the intellect clear.

The article from the *De veritate* describes clearly what follows from our knowledge of the noetic nature of the act. What follows is knowledge of the "truth," and the enunciation of the judgment, "So it is in reality." But the article does not tell us what indications lead us to the knowledge of this noetic nature of the act; we shall have to find elsewhere what these are. But what we have just seen gives us some very important leads. The act is known by reason of the object and, what comes to the same thing, "by knowing the intelligible object it understands also its own act of understanding." This does not take place by a comparison with the thing; it takes place by a consideration of the object such as it is represented in the mind, that is, by reflection on the content of the representation. In this content we shall have to find something which tells us what it is "to understand."

In the reflection the transition from the knowledge of the nature of the act to that of the nature of the potency is made immediately and without difficulty; however, the transition from the reflection on the content of the representation to the knowledge of the nature of the act can require more time. Every reasoning process is one of these reflections, and a reasoning process can be difficult and demand much time, whereas a reflection on a connection which is self-evident can take place quickly. The different phases of the reflective process are not equally easy.

The difficulty of Roland-Gosselin finds its definitive solution in the answer of Boyer: if St. Thomas, in this article, speaks of the nature of the act and of the nature of the active principle, he means only the "noetic nature" and not at all the "metaphysical nature." This is perfectly clear and perfectly in accord with the rest of his doctrine. The transition, in knowledge, from the nature of the act to that of the active principle, is manifestly very easy. The knowledge of the nature of the act can have its difficulties, and we shall have to examine this point further; but once the act is recognized as an "understanding" (*intelligere*), then the faculty knows itself immediately as "intellect," and we understand fully the meaning of this term.

C. *The Nature of the Act and the Nature of the Active Principle.* What we have just said touches upon another erroneous interpretation of *De veritate*, q. 1, a. 9, a misunderstanding of a more serious character, and which is perhaps the foundation of the difficulty of Roland-Gosselin. It is an interpretation, or rather—in the literal sense of the word—a translation. We read in Roland-Gosselin the following translation which he gives to *De veritate*, q. 1, a. 9:

Truth is known by the intellect according as the intellect reflects on its act; not merely according as it knows its act, but according as it knows the proportion of its act to the thing; now this proportion cannot be known without previous knowledge of the nature of the act itself; this latter, in its turn, cannot be known *without there being first known the nature of the active principle which is the intellect itself*, whose nature it is to be conformed to things.¹⁵ (La vérité est connue par l'intelligence selon que l'intelligence réfléchit sur son acte; non seulement selon qu'elle connaît son acte, mais selon qu'elle connaît la proportion de son acte à la chose; or cette proportion ne peut être connue sans que soit d'abord connue la nature de l'acte lui-même; laquelle ne peut (à son tour) être connue *sans que soit d'abord connue la nature du principe actif qu'est l'intelligence elle-même*, dans la nature duquel il est de se conformer aux choses.)

The words we have italicized give a completely erroneous translation of what St. Thomas wants to say and of what he actually says; in fact they say rather the contrary. What precedes is well translated, "this proportion [of its act to the thing] cannot be known without previous knowledge of the nature of the act itself" (*cette proportion [de son acte à la chose] ne peut être connu, sans que soit d'abord connue la nature de l'acte lui-même*). The Latin had "*quod [quae] cognosci non potest nisi cognita natura ipsius actus*." But what is false is the supposition that before the knowledge of the nature of the act, there must precede the knowledge of the nature of the faculty. St. Thomas means just the contrary.

It is his constant teaching, always clearly enunciated, that the knowledge of the act *precedes* the knowledge of the faculty or principle, even where there is question of the intellect; he always upholds the position that man can know the potency only *from* and *by* its act. Moreover, this thesis was the reason for the difficulty of Roland-Gosselin.

We recall the declaration of St. Thomas that the potencies of the soul in general are known by their acts; of the intellect he says specifically, "by knowing the intelligible object it understands also its own act of understanding, and by this act knows the intellectual faculty." This does not refer only to the presence of the faculties in the soul, but also to their specific nature; for it is thus that they are defined. This we saw in the words of *In Sententias*, III, D. 23, q. 1, a. 2, ad 3: "From which [object] it knows the nature of its act and from the nature of the act the nature of the cognoscitive power." Special mention is made of the *ratio* of truth, which is known by this means. This thesis was never denied by St. Thomas.¹⁶

In the mind of man the knowledge of the act of understanding is really prior to knowledge of the nature of the intellect; and that is why the intellect is defined as the power of understanding. As far as the mind of St. Thomas is concerned, there can be no possible doubt. The nature of the intellect is not known before the nature of its act. The very words of *De veritate*, q. 1, a. 9, if they are read attentively, do not admit of any other interpretation, as was brought out by Boyer in the article to which we have so often referred.

Once more, here is the sequence of ideas in the passage. The judgment is the fruit of a reflection of the intellect on its apprehension. By this reflection it discovers the truth of this apprehension, that is to say, its proportion to the thing. This cannot be known unless the nature of the act

be first known; the knowledge of this nature must, then, *precede* the knowledge of the proportion to the thing; this is expressed in the Latin by the past participle, *cognita*. Then the text continues, "the nature of the act cannot be known unless (at the same time) there is known the nature of the active principle, which is the intellect itself" (*cognosci non potest nisi cognoscatur natura principii activi, quod est ipse intellectus*). Here St. Thomas does not use the *past* but the *present* tense. Hence he does not say that the knowledge of the nature of the intellect precedes, as the translation of Roland-Gosselin makes him say. St. Thomas does not deny his own general thesis. What then does he mean to say? That the knowledge of the nature of the intellect is *inseparably tied* to the knowledge of the nature of the act; this latter cannot be known without this knowledge also making known the nature of the intellect. The words of the text literally do not say anything else. And this is not in contradiction with the constant doctrine of St. Thomas. The second knowledge is then, always and necessarily, simultaneous with the first, inseparable from it, but the first remains prior in nature (*natura prior*); always and everywhere we get the knowledge of the intellect from its act. Here, then, are two phases of the reflection, and the transition between them is so easy that it is made necessarily and without interruption; thus the first has only a priority of nature. The *nisi cognoscatur* has then simply the meaning of *quin cognoscatur*.¹⁷

In this article, therefore, St. Thomas remains faithful to his constant doctrine; but he adds a detail, namely, that the noetic nature of the intellect is known necessarily and immediately from the knowledge of the noetic nature of the act. The translation which attributes to St. Thomas the opinion that the knowledge of the nature of the intellect is prior, and even necessarily prior, to the knowledge of the nature of its act is, therefore, fundamentally erroneous.

One might have expected that this interpretation would not arise again after Boyer's clear reasoning, which we have only developed and confirmed by other texts and other theses of St. Thomas. Nevertheless, this is what has taken place. Because the matter is so important and so fundamental for St. Thomas's justification of the judgment and for his theory of knowledge, we shall give some more examples of erroneous interpretation.

G. Rabeau says, in passing, a few words on the same passage from St. Thomas. He translates it as follows:

And, in fact, our intellect does not know that it perceives the true, except by a reflection on its own proper act, "not merely according as it knows its act, but according as it knows its proportion to the thing, which proportion can be known only by the knowledge of the act itself. This act, in its turn, can be known only *through the knowledge of the principle* of activity, which is the intellect, the nature of which is to be conformed to things. Thus the intellect knows the truth only by a reflection on itself." (Et en effet notre intelligence ne sait qu'elle perçoit le vrai que grâce à une réflexion sur son acte propre, "non seulement selon qu'elle connaît son acte, mais selon qu'elle connaît sa proportion à la chose, laquelle ne peut être connue que par la connaissance de l'acte lui-même. Et celle-ci à son tour ne peut être connue que *par la connaissance du principe* d'activité, qui est l'intelligence dont c'est la nature de se conformer aux choses. Et ainsi l'intelligence ne connaît la vérité que par une réflexion sur elle-même.")¹⁸

The words we have italicized contain the contrary of the opinion of St. Thomas, according to which the principle is known by means of the act. Moreover, the translation is somewhat free.¹⁹

Rabeau seems to be ignorant of Boyer's research. Still worse is the case of two German authors who know it and quote it, and who nevertheless give without a word of explanation, or of justification, a fundamentally erroneous translation and interpretation. Wilpert gives the following translation:

This [the correspondence of the act with the object] can be known only if the nature of the act is known, and the knowledge of this *presupposes* a knowledge of the nature of the active principle, that is, of the very intellect itself, whose nature it is to assimilate itself to its objects; hence the intellect knows the truth through reflecting on itself. (Diese [die Übereinstimmung des Aktes mit dem Gegenstand] kann nur erkannt werden, wenn die Natur des Aktes erkannt ist, und deren Erkenntnis hat die Erkenntnis der Natur des aktiven Prinzips, d. h. eben des Intellekts selbst *zur Voraussetzung*, in dessen Natur es liegt, sich den Gegenständen anzugleichen; daher erkennt der Intellekt dadurch die Wahrheit, dass er über sich selbst reflektiert.)²⁰

We have italicized the word which, by inverting St. Thomas's thesis, demands the knowledge of the nature of the principle as *presupposed* for the knowledge of the nature of the act.

Two years later, the same error is found in the translation of J. de Vries:

However, the simple awareness of the act is not enough; rather there is required a knowledge of its essential relation with reality. But this knowledge is possible only if the nature of the act itself is known. And *for this in turn there*

is needed a knowledge of the nature of the active principle, that is, of the intellect itself. (Freilich genügt nicht das einfache Bewussthaben des Aktes; vielmehr ist eine Erkenntnis seines wesentlichen Verhältnisses zur Wirklichkeit erfordert. Diese Erkenntnis ist aber nur möglich, wenn die Natur des Aktes selbst erkannt wird. Und *dazu wieder braucht man* ein Wissen um die Natur des tätigen Prinzips, d. h., des Verstandes selbst.)²¹

This translation also, in the words we have italicized, has inverted the order established by the doctrine of St. Thomas. The knowledge of the principle, the intellect, is there described as the necessary means to arrive at the knowledge of the nature of the act: *dazu braucht man*.

What is more astonishing is the naïveté with which these authors give their translation, without clarification and without reference to Boyer's interpretation, or to his commentary, in which he demonstrated his interpretation. One can easily foresee the result of a reconstruction of the theory of knowledge of St. Thomas when the starting point is an opinion which affirms the contrary of one of the most fundamental Thomist theses in this matter.

D. *The Nature of the Intellect and the Judgment*. But there is another question which can be asked, even when one has understood that the knowledge of the nature of the faculty is posterior; it is this, Is this knowledge always followed by an *affirmation*, such that the intellect, prior to any judgment on the content of an apprehension, formulates in regard to itself the *judgment* that it is the nature of the judgment to be conformed to reality? In any case, St. Thomas does not say it, and without doubt, did not want to say it. This knowledge is there, arising from the knowledge of the nature of the act; but it is not highlighted and there is no necessity to affirm it explicitly. This knowledge remains a virtual judgment and we have already many times noted the existence of such judgments.

Indeed, this simple view of the nature of the intellect is not even a motive for the affirmation of the objective structure, nor is it a condition of the possibility of this justified judgment. For, according to St. Thomas, these are the data: the human mind has the content in its first operation, the apprehension; then, in reflection, it discovers the nature of the act, that is to say, of *this* concrete operation, and it discovers this nature in its object, in this *content*, and in this way it discovers the relation to being of *this* apprehension or of *this* content. Suppose now that it did not at the same time, although secondarily, know the nature of the intellect, it

would, nevertheless, affirm necessarily and rightly the content of this apprehension, "So it is in reality," for it knows the conformity of *this content*. The motive of the affirmation is not the presence of the apprehension in an intellect, the nature of which is to be conformed to reality, for then every apprehension should in consequence be affirmed and even immediately. No, the motive for the affirmation is only the view of the *nature of this concrete apprehension*, by means of the view of its object, its content. We have said before (Chapter I, Section 3, B) that in answer to the question, "Why do you affirm this?", if the emphasis falls on "do you affirm," we should say, "Because I understand it"; for this "understanding" (*intelligere*) is the nature of this *determined act*.

5. DIVISION OF JUDGMENTS ACCORDING TO THE DIVERSITY OF REFLECTIONS

In *De veritate*, q. 1, a. 9, we are told rightly that the truth of a representation is known from the nature of the act, and that to this end the mind has need of a reflection. We know besides that the nature of the act is manifested in the object; but we are not told what it is in the object that manifests the nature of the act. Since the act is one of understanding there must be something which manifests an intelligibility. But it must be expected that this will not always be the same thing, since the reflection is not always of the same type.

We already know that a singular judgment, to be justified, demands a reflection which penetrates beyond the intellectual act to the phantasm, and that this judgment is an application of the preceding universal truth. The reflection leading to a contingent judgment should penetrate even as far as the sense data, the source of the apprehension. The simplest case is found, according to St. Thomas, in the necessary and universal judgment about a material object; for then the reflection can restrict itself to the nature of the apprehension alone. And then the nature of the act is the simplest type of understanding.

Hence the most simple case is that of a universal judgment on the structure in the proper object of the human mind, that is to say, the objective structure of material things. In origin, these judgments are simpler than the judgments of the theory of knowledge. For in this first reflection we learn the noetic nature of the intellect, but we do not affirm it explicitly. The attention of the mind remains fixed on the content of the apprehension which is the object of the reflection, and the following judgment

affirms *this structure* of an exterior material object. *Afterwards*, the intention and, with it, the reflection, can direct itself to the nature of the intellect, which the initial reflection revealed to us as a kind of by-product. It can perceive that we have *judged*, and what the meaning of this judgment is; and thus it can lead to other judgments on a nature which is no longer material. We thus have the beginning of the theory of knowledge, and also the beginning of metaphysics. The first and most simple judgments continue to be those judgments which affirm universally an objective structure of a material object.

The simplest of these are the "first principles" (*principia prima*). To judge of the *conclusions* in this matter, we have to institute another and longer reflection, the task of which is to seek out one or many middle terms (*media*) of demonstration. Once more, then, we see that in the doctrine of St. Thomas we have to take the following words literally:

All our knowledge in its origin consists in becoming aware of the first indemonstrable principles. The knowledge of these arises in us from sense. (Omnis nostra cognitio originaliter consistit in notitia primorum principiorum indemonstrabilium. Horum autem cognitio in nobis a sensu oritur.)

To find out how we discover the nature of the apprehensive act which justifies the judgment, we shall have to begin with these first judgments. This will be the topic of the following chapter.

CHAPTER VI

The Justification of the First Principles

1. WHAT THE FIRST REFLECTION DISCOVERS

THE FIRST JUDGMENTS are the fruit of the most simple reflection of the mind on an intellectual apprehension. It is most simple, (1) because it need not penetrate to the origin of this apprehension; (2) because it does not set out on a lateral path which leads to judgments on the intellect itself, and on what has a relation to the intellect; and (3) because it has no need of the help of prior judgments as in the case of a reasoning process. We refer to first universal judgments on the objective structure of the object proper to the human intellect, namely, material things. We refer to our absolutely first principles (*principia prima*).

This reflection is limited to the intellectual act which is the apprehension, which represents (*praesentat*) the objective structure (*dispositio rei*). The reflection *does not compare* this representation with the thing, as we have sufficiently seen. It considers only the noetic nature of the act, not the metaphysical nature. It discovers that the apprehension of this objective structure is an act of understanding; for this is the noetic nature of this apprehension.

To effect this the reflection has to consider the *content* of this apprehension, since the understanding is always the understanding of a thing or object. Recall certain words from the passage of *In Sententias*, III, D. 23, q. 1, a. 2, ad 3, where St. Thomas describes how this "nature" becomes known:

by a species, not indeed of itself, but of the object, which species is its form; and by reason of which it knows the nature of its act. (per speciem non quidem sui, sed obiecti, quae est forma eius; ex qua cognoscit actus sui naturam.)

To have this new knowledge there is no need of a new "species"; the species of the object is sufficient. From this likeness, that is, from the

content of the apprehension, the intellect knows the nature of this operation as an understanding. This recognition consists in this, that the intellect discovers the *ratio* of truth, it sees the content as *intelligible*, and this is the motive of the following judgment, "So it is." This is what we learned also from *Summa theologiae*, I, q. 14, a. 2, ad 3:

By knowing the intelligible object it understands also its own act of understanding. (Ex eo quod cognoscit intelligibile, intelligit ipsum suum intelligere.)

This is an application of the universal thesis that acts are known by their objects.¹

When, however, do we know a given structure as intelligible? St. Thomas has explained this at length:² the necessary, and it alone, is intelligible; the contingent is not intelligible, except in so far as it includes a necessary relationship. A contingent relation is not known directly by the intellect, but only through the intermediary of the senses; in which case reflection becomes more complex.

When the necessity of a relationship is known, then and then alone we have to do with an intelligible; if this is seen, then we know the "nature of the act" and the judgment can follow, "So it is." This becomes clearer if we compare two types of structure, that of a necessary matter, and that of a contingent matter. In a moment we shall see the case of an impossible matter, but this latter can be reduced to the case of necessary matter.

In both types we have, in the intellectual *representation*, a structure, a content or datum, on which the intellect reflects. Only if the mind sees the necessity of a nexus, and hence only if it "understands," does it judge, "So it is." This means that in the two cases—that of the contingency and that of the necessity of a nexus—the mind, by its apprehension, *represents to itself an objective structure*; but it is only in the case where the nexus is known as necessary that it says: "*Not only do I represent it to myself, but it is so.*" When the nexus in the representation is not recognized as necessary, the affirmation is withheld. And in so acting the mind is conscious of its right. Thus, in this reflection of the mind, the complex content of the apprehension, or object, is revealed at one and the same time as intelligible, and in consequence as "being" (*ens*). Every content of an apprehension presents itself as *ens*, but the validity of this claim is not acknowledged by the mind unless it discovers in a necessary nexus of the content its intelligibility.³

This *esse* is the *esse in re* as realism understands it, the *esse* which all consider as the *esse* of realism. It is then an *esse* which does not depend upon the thought of man, an *esse* which remains even when one no longer thinks of it. When there is question of a material structure there is no possibility that this *esse* have another sense. It is true that it is not yet the actual *esse*; for all this is discovered in the apprehension and the phantasm alone, and this latter is possible without the *esse* being actual; the affirmation is as yet only a recognition of the structure as a being (*cui competit esse*); but this *esse* is that of realism. The *esse* of realism has no other meaning. And this recognition of this object as being, this affirmation, as an act, contains in itself its own justification: to know that one understands is to know that what is understood is.

This is discovered in the intelligibility implied by the necessity. Now this necessity can only be the necessity of a *nexus*, of a *relationship*. Once more we see how necessary it is in the doctrine of the judgment of St. Thomas that the apprehension already contain this nexus; and hence that the apprehension be already composite even prior to the judgment. It is in the nexus alone that the mind discovers the intelligibility of the content of the apprehension, and this makes possible the judgment. In the first chapter we saw, almost on every page, and in the other chapters at least frequently, that St. Thomas supposes this composition as antecedent to the judgment. If the *understanding of the nexus* is decisive in this process, we shall understand nothing of St. Thomas's theory if we do not suppose the presence of this nexus before the judgment. The reader can now verify for himself how much the numerous texts of St. Thomas, which we have analyzed or to which we have referred, gain in meaning in the light of what has been said. It is in the necessity of the nexus that the mind recognizes the justification of its judgment, "So it is in reality."

The justification of the judgment is based on a necessity, and one must pay close attention to the character of this necessity. It is the necessity of a nexus which is found in a complex representation. There is no question here of the necessity which is inherent in the intellect *as forced* to assent; above all it is a necessity which the intellect discovers in the object, it is an *objective* necessity. Without doubt, the intelligibility also forces the assent; in the intellect as subject there is a necessity, a constraint. St. Thomas recognizes this fully, for we read in *De malo*, q. 6, a. 1, ad 10:

Of necessity the intellect is moved [to assent] by a necessary truth, which cannot be taken as false; not, however, by a contingent truth, which can be taken as false.⁴ (Intellectus ex necessitate movetur a vero necessario, quod non

potest accipi ut falsum, non autem a vero contingenti, quod potest accipi ut falsum.)

In *Summa theologiae*, I-II, q. 10, a. 2, ad 2 and I, q. 82, a. 2, the same is said of the form of a reasoning process; the recognition of the necessity of its nexus forces the intellect to its assent:

The intellect assents of necessity, when once it is aware of the necessary connection of the conclusions with the principles. (*Intellectus ex necessitate assentit, cognita connexione necessaria conclusionum ad principia.*)

And *Summa theologiae*, II-II, q. 2, a. 9, ad 2:

The knower is obliged to assent by the force of the demonstration. (*Sciens cogitur ad assentiendum per efficaciam demonstrationis.*)

We fully admit that the intellect is forced. But this constraint is preceded, as by its condition, by the recognition of the *objective* necessity which justifies the assent. The last quoted texts say this expressly: the subjective constraint comes from the recognition of the necessity of the apprehended "truth." Only the "known necessary connection" brings about this constraint of the intellect.

This is precisely what we have met with at each instant: "understanding" is the recognition of an objective necessity, of a necessary nexus in the content of an apprehension, of the necessity of an objective structure or matter. It is only this "understanding" which forces the assent. The constraint has as its condition the recognition of the objective necessity and hence it is the contrary of a blind constraint. If there were need of it, one might speak of objective and subjective evidence, provided one maintains the first as the necessary condition of the second.

2. CONSIDERATION OF CONCRETE CASES

What we have said above is a theoretical description formulated in universal propositions. This is not a reason for falling back into the erroneous interpretation of the doctrine of St. Thomas which we have already rejected. All of this is not understood as a result of a study of these universal formulas. It is a doctrine which must be lived; it will not be understood, nor will it force our assent, except by means of a reflection on concrete cases. We have to generate such judgments in our mind and examine

their origin. The texts we have read describe the *theory* of knowledge, and propose, for that reason, as general theories, views which are obtained by the study of concrete cases. One can, for instance, formulate these views: the necessary is intelligible, the intelligible is "being." But this does not mean that these are principles which are applied by the mind to concrete judgments which are the result of *this* reflection; no, what is meant is that they are principles whose universal truth can be read in each of the reflections which lead to one of these judgments. For it remains true that the nature of the faculty (the intellect) which is expressed by these universal formulas, is known from the nature of the act and not inversely: "by knowing the intelligible object it understands also its own act of understanding" and not inversely. In the apprehension of very determined and concrete objects, the intellect knows the intelligibility of these objects, and that is why it affirms them as being, and in each of the instances separately. To understand and appreciate St. Thomas's theory one must allow such judgments to take place in his mind.

The most frequent example of St. Thomas is without doubt that of the relation of the size of a whole and its parts. Thus, *In Sententias*, I, D. 3, q. 1, a. 2:

Those things which are known to us *per se* become immediately known through sense; just as when seeing a whole and its part, we immediately know without any investigation that every whole is greater than its part. (Ea quae per se nobis nota sunt, efficiuntur nota statim per sensum; sicut visis toto et parte, statim cognoscimus quod omne totum est maius sua parte sine aliqua inquisitione.)

This mode of knowledge is opposed to that of a deduced knowledge (as that of the existence of God) which has need of a sufficiently long reasoning process. These other truths are not self-evident. A little before he had remarked:

Whatever is the conclusion of a demonstration is not self-evident. (quidquid est conclusio demonstrationis non est per se notum.)

Now it is easy to observe how the judgment on the whole and its parts is formed; but we must actually form the judgment in ourselves in order to understand the theory of St. Thomas. To begin with, we see a whole, a surface for example, one of whose parts can be distinguished in some way, for example, by its color; and this distinction should be *actual*.⁵ The

whole objective structure is then imaged by the phantasm, it becomes there a "disposition of the phantasm" (cf. Chap. I, Sect. 3); it is found again in the apprehension of the intellect (*resultat in intellectu, ibid.*). These are the data (*accepta* or *praesentata*) which for this object can also begin in the phantasm. There then follows, under the light of the intellect's critical power, the reflection and the judgment, formulated above by St. Thomas: "Every whole is greater than its part." We see the relationship of size between this whole and this part as given *in fact* in our *representation*. The judgment says much more. It affirms this disposition (the relationship of size) as holding for the *thing* and not for the representation alone, and moreover as *necessary* and *universal*. We see at the same time, or rather in advance, that this judgment is justified; for in advance we see—and this is a simple intuition (*statim*)—the *necessity* of the disposition in the *object*. We do not only represent, we do not only think this relationship of, size, but we see, by a simple understanding of the intellect, that it *exists* in the object.

All this becomes clearer by a phenomenon of contrast. Let us take in contrast a case of a disposition which *perhaps* is in contingent matter but we are not sure. We can easily represent, by a phantasm, a green swan. We can then ask ourselves: Is a race of green swans possible? We have in our imagination a representation of this disposition, and then a defective intellectual apprehension. We say defective, because the essence, the *ratio* of a swan is known by us only very imperfectly. Do we affirm this disposition of the thing by a judgment? Do we affirm it even as possible? Certainly not, if we are prudent. Nevertheless, here as in the first case there is a clear phantasm, and we can say: I *represent* the swan as green. But the judgment "Such a thing is naturally possible" does not follow.⁶

It is now easy to observe simply, in our mind, the difference between the two cases; in the first case we see intellectually that the relation (or the predicate "greater than its part") *springs* from the form of the subject (*ratio subiecti*), that is to say, from the subject "the whole" *as whole* (and not, for example, from the subject *as colored*, or *as beautiful*, or *as hard*, and so on). We see that it results from it *with necessity*, and that is why this objective structure is *intelligible*; this point also we simply intuit in the mind. "Understanding" is nothing more than the intuition of such a necessity. In the second case (because the real essence of a swan is only imperfectly known by us) we do not observe this connection springing up. The intellectual intuition is lacking. And that is why—there is always question here of a simple intuition and not of reasoning—in the first case

the judgment follows: "So it is," but in the second case we do not even say, "A race of green swans is possible." In the first case, intuitively and rightly, we say, "I do not only represent it so, but it *is* so"; in the second we can only say, "I represent it so, but whether it is so I do not know."

One thing more. We judge in this way, but not because a universal principle, such as "The intelligible is being," has preceded. This would imply a reasoning process, whereas there is a simple intuition; and this universal principle itself is rather a corollary resulting from our intuition. Even after the above process we do not ordinarily affirm this principle, still less do we formulate it—it remains in the mind as a virtual judgment. Such a principle is formulated only in philosophical research, and then it is the fruit of a second reflection. Nevertheless, the first judgment is justified and critically justified; for it is enunciated only after a reflection which reveals the necessity and by that the intelligibility of the disposition, and which discovers the intimate meaning of "being." In the concrete case we see, by means of an intellectual intuition, all that we could arrive at by an application of the abstract universal principle.⁷

Let us take another example in "impossible matter" (*in materia remota*). Given a straight line and on it three points, in this order: A, B, and C; let there be given a fourth point with this determination "between A and B." To understand this structure we construct this point D on paper or in a phantasm. We ask: Is the point D situated also between A and C? The answer, after a consideration of the drawing or of the phantasm is immediately affirmative; further, this judgment is necessary and universal, and is a case of a "necessary matter." Now ask: Is the point D situated also between B and C? The answer now is negative; we not only see that *in fact* it is not so, but we see that the situation is impossible; and further, this judgment is universal and has reference not only to the representation, but also to reality: "It cannot be thus."

The case is simple but important. We intuit what we can call a positive unintelligibility. The human mind, which is so imperfect, often encounters a problem which (at least provisionally) is insoluble, a case where it does not see the possibility of a structure as verbally described, nor does it see the impossibility. But this is not the case here; if it were the case, the mind would not make any judgment. But the mind here sees positively that the described case is impossible. There is no defect of intuition, there is evident clarity; the mind sees that the described disposition is *excluded*; it is in truth an impossibility. Just as the intelligibility, that is, the intuition of a necessary connection, implies that the intelligible is "being," so

also this intuition of a "necessary exclusion" implies that what is thus positively unintelligible is not being (*ei non competit esse*). •

However, we insist on this point: these two universal principles ("The intelligible is being," "The unintelligible is not being") are not known ahead of time; nor are the first mathematical judgments conclusions or applications deduced from them—otherwise all the other principles, with the exception of these two noetic principles, would result from a syllogism. Rather, these principles themselves are arrived at through judgments concerning material mathematical dispositions; indeed, they are at first only virtual judgments; it is only a further reflection which makes them actual judgments explicitly formulated.

3. SCOPE OF THE FIRST REFLECTION

The group of first judgments, the fruit of the simplest Thomist reflection, consists of judgments on the necessary structure of material things, which are the proper objects of the human mind. But by no means all the relations of material things are obtained by this simple reflection. There are other relations—and their number is enormous—which demand a further reflection which leads to the affirmation of singular and contingent dispositions, or at least of structures not immediately known as necessary. To this class belong the facts of everyday life, and the majority of physical facts.

One can ask the question: what portion of the sciences is made up of these necessary and universal judgments which are the result of this first Thomist reflection, which limits itself to the nature of the act of the intellectual apprehension? The portion is quite large. To begin with, there are the principles of arithmetic, inasmuch as these are self-evident principles. In the elementary construction of this science, these principles are not all formulated (and we believe that even in an axiomatic construction of the science, there are many which escape our attention). Much effort may be required to discover them all and distinguish them accurately.⁸ Nevertheless, the knowledge of these structures and of their necessity directs the natural construction of arithmetic; there these principles are virtual judgments.

The same is true of the principles of geometry. It must be noted, however, that many principles used in the construction which is called "axiomatic" in the modern sense are not all self-evident principles. Inversely, modern geometricians in this construction consider as "deduced" those

theorems or propositions that are for the human mind true immediate principles.

The principles of these two sciences do not exhaust all the self-evident principles which belong to this first reflection of the human mind on its "proper object." This first reflection also attains principles which belong to the physical sciences and to natural philosophy. An analysis shows that their number is not as restricted as one might believe. It must be noted again that the human mind knows these principles "naturally" by this reflection but it does not necessarily formulate them. They can remain virtual judgments but they do have a directive influence in the construction of the sciences; and thus they contain in themselves the critical justification of these sciences.⁹

Also to this class of first principles belong the principles directive of the operations accomplished by the aid of symbols. These are the operations which are used by logistics, and which were not lacking in classical logic. Obviously, algebra and even elementary arithmetic make extensive use of symbols as objects of different operations. Now all these operations (and they are sometimes almost manual operations) are accompanied by the intellectual intuition that these manipulations lead to a necessary and universal result.

But the science which is due to this first simple reflection is very much more extensive. For in combining the principles already found, that is, the immediate judgments, one can deduce conclusions from them, by means of the syllogism. Then, it is true, the reflection (which leads immediately to the intuition in the case of the principles) becomes longer and sometimes more difficult, but its nature does not seem to be changed, as long as use is made only of the immediate principles and of the conclusions derived from them. Let us analyze this process.

The first principles are immediately evident. "Immediately" however does not deny that a previous education and preparation of the sense faculties is necessary; this preparation is the famous process of the final chapter of the *Posterior Analytics* (and of the first chapter of the *Metaphysics*) to which St. Thomas refers so frequently, that is, sense, memory, experience; only then is there a sufficient preparation for the intellect to attain, by abstraction, an intellectual view. The education and the preparation of the sense can take a long time; once, however, it is sufficiently mature, there then follows, as a result of an intellectual reflection, a certain judgment. If there is question of the "first principles" this judgment follows "immediately," in opposition to the operation of the reasoning

faculty (*ratio*), in which there is a kind of movement, a transition from one intellectual view to another. Thus St. Thomas, in a number of passages.¹⁰

The demonstration which takes two of these principles as premises of a syllogism arrives at new knowledge as a conclusion. In combining the conclusions among themselves and with the principles, demonstration attains ever new results. Now the point is this: the reflection has the same character as that which leads to the intuition of the principles; it considers only the content of the intellectual representations; but it is longer and more complicated. For in a self-evident principle the human mind has an intuition "immediately" (*statim* in the sense explained above), because it sees immediately, in the case of a sufficient abstraction, that the form of the predicate, P, springs necessarily from that of the subject, S, for it is to this that the affirmation owes its origin. Now, the reflection required for a "demonstration in necessary matter" differs from the preceding one only in this, that it has need of an intermediary, namely, the form of the middle term, M. The mind then sees successively that the form of P springs necessarily from that of M, and that of M from the form of S. The reflection has become longer and makes use of an intermediary, but it has not changed its nature. Thus the domain over which this reflection extends is exceedingly large.

What is more, as we have seen (Chap. IV, Sect. 4), after the "movement" of reason, after the resolution to first principles (*resolutio in prima principia*), the human mind can encompass the whole in a single view; then the *ratio* becomes an *intellectus*, and the necessary nexus between S and P through the "middle terms" is seen in a single view.

4. THE REFLECTION IMPLIED BY THE PRACTICAL SYLLOGISM

A difficulty could be raised as follows: this syllogistic deduction requires principles which belong to another group, that of the theory of knowledge, or of formal logic; one must know in advance, and then apply, these formal syllogistic principles. But such knowledge requires a reflection of a different type, no longer on the content of the apprehension, but a reflection on the nature of the mind itself and on its activity.

But this opinion is an error. Just as the intuition of the nature of the act does not suppose that of the nature of the active principle, and just as the principle "The intelligible is being" does not precede the intuition of "The whole is greater than its part," so the intuition of the universal

sylogistic principle does not precede that of the validity of a determined, concrete, practical syllogism, provided that the syllogism be clear and accurately formulated. In both cases the reverse order holds: the universal is known in the concrete case, it is discovered by an intuitive abstraction.

Aristotle already called our attention to this fact in the *Posterior Analytics* (II, 6, 92a 11-18) and St. Thomas admits this thesis (*In Posteriora Analytica*, II, lect. 5, n. 4):

The definition of the syllogism is not one of the premises of the syllogism. (Definitio syllogismi non est aliquid eorum ex quibus procedit syllogismus.)

The definition of the syllogism is not a part of the concrete practical syllogism; it is not one of its premises; it is not affirmed therein. This implies that the validity of the concrete syllogism is not seen as an *application* of the general principle, or of the universal form. Inversely, the universal is known as an abstraction from the concrete, determined, and practical case. One can even demonstrate this thesis. In truth, the supposition that the validity of a concrete syllogism can be seen only as an application of a universally valid form leads to an absurdity. Let us take the most "perfect" syllogism, that of *Barbara*, and let us suppose that the knowledge of the universal validity of this form must precede, in order to have the knowledge of the validity of a concrete syllogism in *Barbara* as an application of the universal form. Then the process would consist in this: the first knowledge gives this judgment: "Every syllogism of the form *Barbara* is valid"; then follows the observation, "This specific, concrete syllogism has the form *Barbara*"; whence the conclusion, "Hence it is valid." But the process itself will be a concrete syllogism in *Barbara*!¹¹ Hence, according to the supposition, to see its validity, one would have to demand a new application of the universal principle, and so on *ad infinitum*.¹²

The knowledge of a universal form or of a universal principle of the syllogism does not differ, in respect of origin, from the knowledge of the "nature of the active principle" of *De veritate*, I, 9. Just as the latter is not known except in and by and from the knowledge of the "nature of the act," so the validity of the universal form of the syllogism is discovered in the validity of a concrete, practical syllogism which is determined in its content; just as man knows the abstract in the concrete. Certainly (both Aristotle and St. Thomas emphasize this in the passage mentioned) a syllogism can be so complicated that it may be necessary to analyze it with care in order to see its validity. If the form is legitimate, it will be recog-

nized as valid; we would then have an application of the universal to a particular case. But this can be done without involving oneself in a process *ad infinitum*. Further, it must be noted that the study of logical principles—which have been learned from concrete cases, or derived from known principles—can give a habit which enables us to perform logical operations more rapidly and more surely. These last two remarks are valid in an analogous manner for the other principles of the second group and for their applications, as we shall see in the following chapter. But, on the other hand, we shall also see a characteristic difference between the logical principles and the others.

The reflection which leads to conclusions deduced from the first principles alone does not, then, differ in nature from that which reveals to us the first principles themselves. That is why the scope of this reflection is so wide. In practice it directs all mathematics and a great part of the other sciences.

5. THE NOETIC IMPORTANCE OF THIS RESULT

The result at which we have arrived seems to have a high noetic importance: it teaches us the dependence and the independence of our intellect in relation to the senses, in so far as there is question of the sciences which come under this first reflection.

The human intellect in this life is, and remains, largely dependent on sense data, where it finds its "proper object." This dependence is permanent: it is present not only during the discovery of the first principles, but also during the first deduction of a conclusion. Indeed, even for the renewed understanding of a result already acquired the human mind has need of a phantasm. For this life the axiom "The soul never understands without a phantasm" (*numquam sine phantasmate intelligit anima*) remains always true. This dependence is affirmed not only for the *terms* of the judgment, the concepts of the subject and predicate, but also for their *nexus*. The whole objective structure must be represented in the data. This is impossible without a corresponding phantasm; even for this synthesis the human mind depends upon sensible experience. This is necessary for the understanding of the content (*determinatio*) of judgments.

On the other hand, even for the judgments which result from this first reflection, all the rest—and this is of highest importance—all the rest comes from the intellect alone; in this there is no longer any dependence upon the knowledge of the senses; these only furnish the material, and

this is why intellectual knowledge can surpass the sense data which are its sources.¹³ We recall that the principal function of the senses of man is to *present* to the intellect its object, and not to make the intellect reproduce the knowledge which is proper to the senses. What is proper to the intellect alone is, in the first place, the justified attribution of objectivity (*esse in re*) to this *Sachverhalt*, that is, to the content of the intellectual apprehension; the critical work, therefore, belongs to the intellect. This *esse* is *only* recognized in consequence of the *intelligibility* of this content, that is to say, in consequence of the necessity of the nexus. And this necessity cannot be known by the senses, it can be known by the intellect alone, in its proper and sovereign activity, precisely by reason of which it surpasses the senses. Let us suppose that the *same* apprehension (objectively considered) were in the intellect, *without having come from the senses*; then the intellect, by reason of its own intuition of the necessity and intelligibility, would still say "So it is in reality" (*ita est in re*). In this intuition the intellect is independent of sense knowledge and transcends it.¹⁴ We can therefore speak of a relative dependence and independence.

We affirm, then, *these* principles and *these* conclusions in saying "So it is in reality"—*not because the senses so present them*, but *uniquely* because the intellect sees the necessity of the connection in what is presented. The human mind, therefore, depends on the senses in this matter only for the reception of the representation. If, then, this representation could be formed in another manner, the judgment would remain invariable, "So it is," (that is, *ei competit esse*). Such then, in this matter, is the dependence and the independence of the human mind in relation to the senses.

In other words: it is true that the senses are, after their fashion, cognoscitive faculties—but we know this as a result of a further reflection; on the supposition, however, that they were not cognoscitive, nevertheless, by reason of the necessity and intelligibility of these representations, the judgment would still be, "So it is in reality" (*ita est in re*). This *esse* is not actual existence, but is "mathematical" existence, the existence of the essential relations of the nature absolutely considered (*natura absolute spectata*).

Judgments of this type, therefore, affirm that the essential relations, discovered by means of their intelligibility alone, "exist" in the sense of "the nature looked at absolutely"—they have a "mathematical" existence. These judgments come from an intuition, prior to all reflection on sense

knowledge, and hence, *a fortiori*, prior to all systematic doctrine about sense knowledge. Nevertheless, these judgments are critically justified.

But we can go even farther. By this simple reflection, not only do we know the "existence" of these *relations*, but also the existence of the *things* which are in mutual connection by these relations. For these relations are not known as simple factual connections in our representation; otherwise, the mind would not affirm them of the thing, *ita est in re*, it would only say, "I represent things so." However, we observe that the affirmation has another meaning. The relations then are known as resulting from the essences, and for that reason as necessary and intelligible. And this would be impossible without a certain intuition of the essences themselves; impossible, we say, unless these essences are intelligible at least as regards those *rationes* from which result their intelligible relations. And thus these essences, at least as regards these *rationes*, are also known as being (*id cui competit esse*). This is the meaning of the words of *Summa theologica*, I, q. 17, a. 3, ad 1:

Because the essence of a thing is the proper object of the intellect, we are properly said to understand a thing when we reduce it to its *essence*, and judge of it thereby. (Quia quidditas rei est proprium obiectum intellectus, propter hoc tunc proprie dicimur aliquid intelligere, quando, reducentes illud in *quod quid est*, sic de eo iudicamus.)

In the proper sense, "to understand" (*intelligere*) is, then, to judge of a structure which can be reduced to *quod quid est*. And it is by this that its necessity is recognized. See, for example, *Summa theologica*, I, q. 79, a. 9, ad 3:

[The intellect] perfectly knows necessary things which have perfect being in truth; since it penetrates to their very essence, from which it demonstrates their proper accidents. (Necessaria quae habent perfectum esse in veritate, [intellectus] perfecte cognoscit, utpote ad eorum quidditatem pertingens, per quam propria accidentia de his demonstrat.)

The objective structure as a whole, with its nexus, but also with its terms, is known as necessary, intelligible, and hence as being, and its terms are known as "beings." The knowledge of the necessity is a sign of the penetration to the quiddity (*ad eorum quidditatem pertingens*).

One might be of the opinion that this is in contradiction to the doctrine of St. Thomas on conditional propositions where the antecedents are absurd (Chap. IV, Sect. 3, E), as, for example, "If man is an ass, he

has four feet." These propositions, if they are true (and this holds of this proposition) are called necessary and hence intelligible. And yet the pseudoquiddity "man is an ass" does not exist, nor does that of the consequent. That is why we have seen (*loc. cit.*) that these propositions affirm *only* a necessary connection of the *predicates*, of the antecedent, and of the consequent; they do not affirm the subject. These predicates are the forms respectively of the subject and predicate of the categorical *per se* proposition of which the conditional proposition is another expression. But these forms, without doubt, "exist," and likewise their necessary connection "exists." Only they do not exist in the subject to which they were attributed in the conditional proposition, the form "ass" undoubtedly exists, but not in the subject "man." But since this connection is necessary and intelligible (at least it is supposed as intelligible in the example) and as such, is *ens*, there must be something, at least a subject not otherwise determined (an *x* of the formal implication), in which is found the first form and in consequence also the second. The things in which we discover this connection and its necessity are "beings." The determined things to which we afterwards attribute them in conditional propositions, which can have an absurd antecedent, do not, for this reason, exist. For these things can have a form which excludes the other form which we arbitrarily attribute to them.

We must then maintain that if relations are known as necessary, and hence intelligible, they "exist" and the precise forms connected by these relations likewise "exist," and that there are things in which these forms are realized together with their relation.

This first reflection of St. Thomas already makes manifest a wide domain of realities which, with their relations, are known by the sciences we have mentioned; and they are known as they are in themselves.

This consideration leads to a noetic result of the highest importance: the critical justification of the judgments in this domain has absolutely no need of a prior systematic critique of the sense faculties. It would be a serious error to demand such a thing. This procedure would not enhance the value of the critique. On the contrary, one can set up a critique of the sense faculties only by making use of data acquired by this first reflection. And even then, to gather the data for the critical examination of the sense faculties, it would be necessary to prolong this reflection which is St. Thomas's starting point and which limits itself to the content of the intellectual apprehension. Such a prolonged reflection could lead to re-

sults only after these first judgments are made and after the knowledge of their justification. The Thomist critique of knowledge begins with these judgments which are the fruit of the first simple reflection, just as the certain intellectual knowledge of man begins with these judgments.

This leads us to an objection, of no great importance, which we raised some years ago.¹⁵ It is this: we can express the relative independence of these first judgments in respect of the data of the senses in the following manner. The fact that the intellect receives this apprehension from the senses is not at all a *motive* for its affirmation; we do not say, "It is so," *because* the senses give testimony to it—it is not even necessary to know that the senses are cognoscitive faculties, as we have seen—we affirm the content of the intellectual apprehension only by reason of its own internal intelligibility, by reason of the "nature of the act." This is the unique motive and a purely intellectual one for all these judgments. This is true, we can say, without any restriction, for the *majority* of judgments in these matters (the mathematical and allied sciences), but there are in these sciences some judgments which seem to suppose an appeal to the testimony of the senses. Thus, for example, to know that 5 and 7 make 12, one has to join these two specific multitudes and count the result. And this operation seems to invoke the testimony of the senses. Without doubt it is accompanied by an intellectual insight, teaching us that the operation by its nature leads to a necessary and intelligible result; it is accompanied by an intuitive abstraction, teaching us that this result depends only on the multitude as multitude (and, hence, not from the color or the other properties of the object). It is done, then, under the direction of the first reflection, but to know the specific result the intellect has to receive as matter the data of the sense knowledge. It would seem then that we cannot say without restriction that the testimony of the senses is not at all a part of the motive. And hence reflection should, in this case, be prolonged to attain the collaboration of the senses.

For some time we believed (*loc. cit.*) that we had to admit the force of this objection, that these judgments are pronounced only after a reflection on the value of the testimony of the senses. We no longer believe this. The first reflection, which does not extend to the senses, suffices; it suffices for the judgment of which the objection speaks, just as it suffices in the case of the judgment on the whole and its part. These data of the senses are only required in order to have an object, the senses only give the determination or content of the apprehension. The reflection that reveals the intelligibility of these data is a reflection that does not extend beyond this

content and which does not yet attain its original source in the senses. Hence, such judgments also are the result of this first reflection alone. They do not presuppose anything about the value of sense knowledge. The restriction which this objection would impose is inadmissible.

Moreover, we can say that, even granting this restriction and supposing even here a further reflection which would take in the origin of the apprehension and hence would extend to the senses, we still would have to maintain, *without any restriction and in all its universality*, the last thesis of the Thomist theory just established; namely, that all the judgments which belong to this domain of the sciences (mathematical, and so on), presuppose absolutely no *systematic* critique of the senses as cognoscitive faculties, and *no* theory of knowledge. For this prolonged reflection and the *natural* prephilosophical critique implied is not a systematic critique and it is not a theory. It is made naturally (spontaneously), just as the first reflection is, and it is made in each concrete case. Just as the nature of the intellectual act (the apprehension) is known by means of this first reflection before the nature of the intellect itself (*natura prius*), so also the noetic nature of the sense operation is known (by the intellect) before the nature of the sense faculty. This is the general Thomist theory. And just as the nature of the intellectual act is known from the necessity and intelligibility, so also the nature of the concrete sensitive act is known in concrete cases from the intellectually known necessity of the result of the operation. This Thomist theory is verified by simple observation. The theory must therefore be maintained without restriction: for the critical justification of *these* judgments there is no need of premising a systematic critique of sense knowledge. The natural critique is there and it is necessary, but it is also sufficient for the justification of these judgments. One who would construct a prior critique and would want to do this without making appeal to these data, does not make use of the natural intuition of concrete cases, and seems to be in error from the very start.

These sciences, therefore, seem to find their critical justification in the natural operations of the human mind, prior to all philosophy. Moreover, it seems that this thesis is quite commonly admitted by others, though a sufficient analysis is not often made. The domain of these judgments encompasses mathematics, parts of the sciences of nature, natural philosophy, and the operations which are performed with the aid of symbols in different sciences. Now the recognized legitimate existence of these sciences was the starting point for many philosophers in their examination of human knowledge. Thus, in the eyes of Aristotle, geometry as it had

been constructed at the time of Eudoxus and of Theaetetus, and hence Euclidian geometry, was the specimen of science whose structure is the object of the *Posterior Analytics*. The starting point of his theory of knowledge was the activity of the mind as it manifests itself in this science.

For Kant also, the existence of two sciences, the geometry of Euclid and the physics of Newton, was a starting point. He was unable to rediscover the analysis of St. Thomas. The principal reason for this, we believe (we shall return to this in the next chapter), is that he was unable to find the solution of the cosmological antinomies, which preoccupied his mind for so long in his precritical period. For this reason he was unable to recognize extension and its consequences as properties of the real; hence also the path from the intelligibility of these things to the possibility of their existence was definitely blocked for him. To this we must probably add another reason: without realizing it, Kant brought about an inversion of order of positions, which perhaps is more important than his famous "Copernican revolution." St. Thomas finds the possibility of existence only *in* and *after* the intelligibility of the *essential* relations. He finds the relationship to existence in the quiddity. Kant, on the contrary, is convinced in advance of the existence (*esse*) of the "thing in itself" but knows nothing of its "quiddity"; and thereafter is unable to discover anything about it, probably because he started at the wrong end.

The analysis of St. Thomas teaches us how these sciences are critically justified as constructed by man in his natural (spontaneous), scientific, and critical, but prephilosophic, activity. They are independent of sense observation (in the sense explained above), as regards the knowledge of the necessity and exactitude, even though they make use of sense data. They are independent, under every aspect, of *any* theory of knowledge. For this theory of knowledge is not constructed except with the help of further reflection. This new reflection is directed on the faculties themselves and cannot come except after the reflection, which leads to these sciences, since the new reflection makes use of these results. And yet the human mind, in constructing these sciences, is conscious of their objective value, conscious of the fact that they are critically justified. St. Thomas's analysis enables us to see the reason for this: the reflection which leads to the judgments of these sciences, and which man has to apply in order to arrive at these judgments, is a naturally critical reflection on the data of sense; but this critique is the work of the intellect alone. The theoretical consideration of these judgments, and hence the theory of knowledge, comes afterwards. These sciences are constructed

independently of all systematic doctrine on knowledge, and yet they are critically justified. Undoubtedly, during this construction, difficulties can present themselves, and historically they have presented themselves—difficulties that obscured the intellectual clarity that existed. On the other hand, the solution of such difficulties led to a development of the theory of knowledge.

This, then, is how St. Thomas explains the manner in which we attain these realities, the mathematical realities and their analogues, and their multiple essential relations. Although born of sense experience, they are justified without having to make the value of sense knowledge an object of prior research and, *a fortiori*, without first having to find a systematic theory of this sense knowledge. They are justified even antecedently to the construction of a systematic theory of intellectual knowledge. The two theories can follow afterwards, and they will be welcome—but these theories can and should make use of the intellectual experience garnered during the construction of the preceding sciences.

This doctrine of St. Thomas is evidently a systematic theory found by the analysis of this experience. It has this characteristic, that it shows how the human mind in its spontaneous activity is realistic and yet critical. Mathematics and the related sciences, the object of which is the “proper object” of the human intellect, are constructed and are justified by the first and most simple reflection of the human mind. The other sciences demand a more prolonged reflection. Does this not explain the historical fact that these were the first sciences discovered and constructed by man?

If we wish to discover for ourselves and also appreciate St. Thomas’s theory of knowledge, we have to follow his method. We should not analyze an abstract doctrine, but seek to find the properties of the human judgment in existing, specific judgments about the “proper object” of the human mind, such as judgments on the relation of size between the whole and its parts, and analogous judgments.

We see that in the Middle Ages the minds of men like St. Thomas were not so naïve as some writers tell us they were. They were not naïve in their analysis of human knowledge and in their construction of a theory with the help of elements so found, no matter how different this theory is from so many modern theories. Neither were they naïve in the construction of the other sciences, nor had the Greeks been so. A critique such as that of Eudoxus, to whom we owe the Euclidian doctrine of proportions, elicits even today, and with good reason, the highest admiration.

CHAPTER VII

The Justification of the First Noetic and Metaphysical Judgments

THE FIRST AND SIMPLEST of the Thomist reflections of the intellect leads from the intellectual apprehension to the judgment on its content. This judgment is an assertion concerning the existence of the content. It is the first reflection because a return of the mind on itself attains first of all that operation of the mind which is the apprehension; it is the simplest, because, as the first, it is presupposed by the other reflections. This content of the apprehensions is a structure which was already present in a phantasm, since the mind, in this life, cannot think without a phantasm. This content belongs to the "proper object" of the human intellect.

The first reflection leads to the knowledge of the noetic nature of this apprehension, and by this means to the knowledge of its conformity, and in turn to the affirmation of the being of the content: "So it is," not only in the representation, but also "in reality." Simultaneously, but with a posteriority of nature, the mind discovers the nature of the active principle, that is, of the intellect itself. Now the reflection can be continued in two ways. Thus, first it could direct its attention to the source of the apprehension, the phantasm and the external senses. This leads, in the first place, to singular judgments, both necessary and contingent. But the reflection can take place in another way; it can direct its attention upon the nature of the principle, the noetic nature of the intellect, and thus it leads to first judgments of a noetic and metaphysical character. This will be the object of the present chapter.

1. THE METHOD TO BE FOLLOWED

The content of these judgments is no longer of a material nature, as was the content of the preceding judgments; for they affirm a structure in which the intellect takes part—hence, something immaterial. Neverthe-

less, this immaterial content can be discovered on the occasion of judgments on a material structure deriving from a phantasm. What is more, it cannot be discovered otherwise. Here we find verified what we have seen above (Chap. I, Sect. 3): "The soul never understands without a phantasm." St. Thomas maintains this universal truth especially for our case. He defends this thesis in *Summa theologiae*, I, q. 84, a. 7. The third objection is an argument against the universality of the thesis:

There are no phantasms of incorporeal things; for the imagination does not transcend time and space. If, therefore, our intellect cannot understand anything actually without turning to the phantasms, it follows that it cannot understand anything incorporeal. This is clearly false, for we understand truth and God and the angels. (Incorporalia non sunt aliqua phantasmata; quia imaginatio tempus et continuum non transcendit. Si ergo intellectus noster non posset aliquid intelligere in actu, nisi converteretur ad phantasmata, sequeretur quod non posset intelligere incorporeum aliquid; quod patet esse falsum, intelligimus enim veritatem ipsam, et Deum, et angelos.)

Evidently this neatly formulated objection is directed only against the universality of the thesis which says that the soul cannot understand *anything* without a phantasm. The exception to the rule would refer to "incorporeal things," three examples of which are given, truth itself, God, and the angels. The last two are beyond our present scope, but the first, the "truth itself," is what Leibniz¹ has called in the same order of ideas "the intellect itself." This latter St. Thomas himself uses when expounding the same doctrine in *De malo*, q. 6, a. 1, ad 18:

The beginning of human knowledge is from the senses; it is not necessary, however, that everything which is known by man be subject to sense, or be known immediately by a sensible effect; *for the intellect itself understands itself by its act, which is not subject to sense*; in like manner also it understands the interior act of the will. (Principium humanae cognitionis est a sensu; non tamen oportet quod quidquid ab homine cognoscitur, sit sensui subiectum, vel per effectum sensibilem immediate cognoscatur; nam et *ipse intellectus intelligit se per actum suum, qui non est sensui subiectus*; similiter etiam et interiorem actum voluntatis intelligit.)

But to understand the intellect and even to understand the will we must always concurrently have an apprehension of a material object. Only the likeness of the object is needed, and this likeness or species depends on a phantasm. This we have learned above (Chap. V, Sect. 2) in *In Sententias*, III, D. 23, q. 1, a. 2, ad 3.

The "truth itself" is something immaterial; it is a property of a judgment of the intellect, a relation of the intellect to the thing. The judgment says that the structure represented exists in fact (*in re*), and the judgment's conformity with the being of the thing is formal truth. The represented structure is, then, conformed to the real structure. But this is precisely what we are examining, the nature of the intellect, "whose nature it is to be conformed to things." The nature of the intellect reveals itself through the nature of the act, the knowledge of which is required to justify the judgment which says, "So it is in reality." The "truth itself" is, then, indeed something immaterial, but it is not necessary to know this during the simple noetic reflection which leads to the judgment. When, therefore, the intellect takes this abstract "truth itself" as the object of a further reflection (this is our case, the case of the first principles of the theory of knowledge), it is considering an immaterial object, of which there can be no phantasm, as the objection rightly said. Nevertheless, the body of the article (*Sum. theol.*, I, q. 84, a. 7) affirmed immediately the universal thesis:

In the present state of life in which the soul is united to a passible body, it is impossible for our intellect to understand anything actually, except by turning to the phantasms. (*Impossibile est intellectum nostrum secundum praesentis vitae statum, quo passibili corpori coniungitur, aliquid intelligere in actu, nisi convertendo se ad phantasma.*)

Hence even immaterial objects, among which is the "truth itself" as the object of the theory of knowledge, are not understood except by a conversion to the phantasm and cannot be known otherwise. It is evident that the phantasm will not be one which is a representation of the "truth itself," for such a phantasm does not exist, as the objection says. There will be a phantasm of a material thing, however, and this phantasm has a definite function. This is all explained in the answer to the third objection:

Incorporeal things, of which there are no phantasms, are known to us by comparison with sensible bodies of which there are phantasms. (*Incorporea quorum non sunt phantasmata, cognoscuntur a nobis per comparisonem ad corpora sensibilia, quorum sunt phantasmata.*)

The "*per comparisonem*" means, as we have seen above (Chapter V, Section 3), "by putting them in relation with." This is confirmed by the words which immediately follow. The meaning is then that we know the

immaterial thing, such as the "truth itself" or the "intellect itself," by putting it in relation with the sensible bodies of which there are phantasms. This really means that we judge that the thing is as the phantasm represents it. The text gives a further clarification in regard to the principles of knowledge, for it continues:

Thus we understand truth by considering a thing of which we possess the truth. (*Sicut veritatem intelligimus ex consideratione rei circa quam veritatem speculamur.*)

The occasion for precisely this is presented when we affirm the content of the apprehension by the judgment. The *res* is a material object, the proper object of the human mind; to this the phantasm and the apprehension are conformed, and its disposition is affirmed by the judgment for this reason. There is question mainly of the simple mathematical relations we saw in the preceding chapter. The *comparatio* consists then in the "consideration" of these structures, the intelligibility of which is discovered by reflection and whose truth causes the judgment which pronounces the existence. The *comparatio* includes also the added reflection upon this act of judging (*circa quam veritatem speculamur*). This prior judgment on a material structure—after the knowledge of the nature of the act—is not only a datum which is useful in arriving at this knowledge and judgment on the noetic relations, but it is absolutely *necessary* for this purpose. Hence St. Thomas ends his answer:

And, therefore, when we understand something about these things, we need to turn to the phantasms of bodies, although there are no phantasms of the things themselves. (*Et ideo cum de huiusmodi aliquid intelligimus, necesse habemus converti ad phantasmata corporum, licet ipsorum non sint phantasmata.*)

"We need to"—for us it is necessary. The understanding and the judgment of an apt disposition, such as those we have seen in the preceding chapter, must precede; and these, therefore, constitute the object of the further reflection, which leads to judgments on "truth itself" or the first noetic principles. Hence, we cannot discover these principles except by setting this reflection in operation; and its object will be the intuition of one of these material dispositions, and the judgments which affirm its being. We do not have to form the concept of a disposition in general but of a specified and concrete disposition, for example, that of the relation of the size of the whole to its part, discoverable in a concrete actual

phantasm. According to St. Thomas, we cannot without such a process arrive at the constitution of a theory of knowledge. Let us examine such a concrete instance.

2. THE THEORY OF ARISTOTLE AND ST. THOMAS

Before making such a reflection on a concrete case, it will be useful to look at the theory to which it leads and to see the connections of this theory. For this passage of the *Summa* is closely connected with the whole theory. In this passage there is a relationship between three Aristotelian theses. We have already encountered two. One of them says that a thing is not intelligible inasmuch as it is in potency, but only inasmuch as it is in act; the other that we know the acts of the faculties of our mind only by reason of their objects and the faculties only by reason of their acts. The third thesis, which we shall study shortly, is taken from Aristotle's *On the Soul*, III, 4 (430 a2). In St. Thomas it reads (lect. 9): "The intellect itself is as other intelligibles." The most complete description of the connection of the three theses is found in *Quaestio Disputata De Anima*, a. 16, ad 8:

Our possible intellect understands itself not by directly apprehending its essence, but by reason of a species taken from the phantasms; hence the Philosopher says in *On the Soul*, III, that the possible intellect is intelligible as other things. And the reason for this is that nothing is intelligible inasmuch as it is in potency, but only inasmuch as it is in act, as is said in *Metaphysics*, IX. Hence, since the possible intellect is only in potency as regards intelligible actuality, it cannot be understood except by reason of the form which actualizes it, which is a species abstracted from the phantasms; just as any other thing is understood by reason of its form. And this is common to all the potencies of the soul, that their acts are known by reason of the object, the potencies by reason of the acts and the soul by reason of its potencies. (Intellectus possibilis noster intelligit se ipsum non directe apprehendendo essentiam suam, sed per speciem a phantasmatibus acceptam; unde Philosophus dicit in III *De anima* quod intellectus possibilis est intelligibilis sicut et alia. Et hoc ideo est quia nihil est intelligibile secundum quod est in potentia, sed secundum quod est actu, ut dicitur IX *Met.* Unde cum intellectus possibilis sit in potentia tantum in esse intelligibili, non potest intelligi nisi per formam suam per quam fit actu, quae est species a phantasmatibus abstracta; sicut et quaelibet alia res intelligitur per formam suam; et hoc est commune in omnibus potentiis animae, quod actus cognoscuntur per obiecta, et potentiae per actus, et anima per suas potentias.)²

The words quoted need no commentary. We cannot discover the nature of the possible intellect except by its act or form, which is the species

of the object abstracted from the phantasm. This truth is here *deduced* from the thesis that we do not know a potency except by its act, and from the fact that the possible intellect is, of itself, only in potency to know. This deduction, however, only serves to give a metaphysical basis to a truth already known by an internal intellectual experience, or by a simple intuition during our reflections. The other two theses, likewise, are the fruits of our intellectual experience. The passage is a confirmation of what we have said on the knowledge of the act by the object, and the knowledge of the intellect by its act. The object can only be a material object represented in the phantasm.

Once more we find confirmation for what we have seen in passing. To acquire these new cognitions, namely, the knowledge of the nature of the act and the nature of the faculty, and even to acquire the knowledge of the nature of the soul and of its other faculties, there is no need of a form, species, or likeness of these objects; rather, such likenesses are excluded.³ What is necessary and suffices is the presence in the mind of a form, species, or likeness of a material object abstracted from a phantasm and the consequent *presence* of the actualized operations of the mind. Recall the words of *In Sententias*, III, D. 23, q. 1, a. 2, ad 3:

As is said in *On the Soul*, III, the intellect knows itself as it knows other things, because it knows itself by means of a species; not indeed of itself, but of the object, and this species is its form; by reason of this form it knows the nature of its act, and by reason of the nature of the act, the nature of the knowing faculty, and by reason of the nature of the knowing faculty, the nature of the essence and in consequence the nature of the other faculties. Not that it has diverse likenesses of all these . . . (Intellectus autem, ut dicitur in III *de Anima*, sicut alia, cognoscit seipsum, quia scilicet per speciem, non quidem sui, sed obiecti, quae est forma eius; ex qua cognoscit actus sui naturam, et ex natura actus naturam potentiae cognoscentis, et ex natura potentiae naturam essentiae, et per consequens aliarum potentiarum. Non quod habet de omnibus his diversas similitudines . . .)

Recall also what we saw in the answer to objection 5, *In Sententias*, III, D. 23, q. 1, a. 2:

As was said, *all* the knowledge which the intellect has of *those things which are in the soul* is founded upon this fact, that it knows its *proper object*, which has a corresponding *phantasm*. For it is not necessary that the cognition stop with the phantasms, but that its knowledge *originate from the phantasms*, and that it transcend the imagination in some things. (Sicut dictum est, *tota cognitio qua cognoscit intellectus ea quae sunt in anima*, fundatur super hoc

quod cognoscit *obiectum suum*, quod habet *phantasma sibi* correspondens. Non enim oportet quod solum in phantasmatibus cognitio stet, sed quod ex *phantasmatibus* sua cognitio *oriatur*, et quod imaginationem in aliquibus relinquat.)

In the light of what has been said, these texts are very clear and also rich in content. In order to understand the nature of the intellect by the nature of the act, the mind has to be informed by the likeness of an apt material object. The further cognitions, each one of which flows from the other, according to the order described, do not have proper species in the possible intellect; the species of the material object is the proper form of the human intellect. In order to know the soul and those things which are in the soul, after the actuation of the intellect by the species of a material object, their presence is sufficient but also necessary. These things are known "by their own presence," as we are told in the article.

Nevertheless, these intuitions are truly new cognitions, distinguished among themselves and from the preceding cognition, and attaining different objects. This is explicitly said in these passages and in all the texts which describe reflection. This is why *Summa theologica*, I, q. 28, a. 4, ad 2, calls them diverse acts:

A man understands a stone by one act, and by another act understands that he understands the stone, and again by another act understands that he understands this. (*Alio actu intelligit homo lapidem, et alio actu intelligit se intelligere lapidem, et alio etiam intelligit se hoc intelligere.*)

We find the same⁴ in *Summa theologica*, I, q. 87, a. 3, ad 2. They are diverse acts because they have diverse intelligible objects.

3. APPLICATION OF THE METHOD

We can discover the principles of "truth itself," the first noetic principles, by reflecting on an apprehension of a material structure and by reflecting on the judgment which follows; in fact, we can do it only in this way. This reflection reveals to us the nature of these operations and the intellect itself in their relation with this structure. This nature is revealed by the "presence" of these actualized operations in the soul. The apprehension and the judgment of such a structure must be actually in the soul, and then a new reflection can lead to a judgment on "truth itself." To discover these first noetic principles one must necessarily set in operation

such a reflection, and its object will be the understanding of such a structure followed by a judgment upon the same. But to actualize this object of the second reflection it is necessary that the structure be specified, that it be, for example, the relation of the size of a whole to its part. Then the process is as follows: we represent to ourselves the whole as greater than its part, and by a formal abstraction, which follows spontaneously, we represent to ourselves the necessity of this relationship and, for that reason, its intelligibility; we understand the whole, as whole, to be larger than its part, as its part. Then follows the judgment: "(I do not only represent it so, but) *it is so*."

Here we have the data or object for the further reflection, namely, the knowledge of the nature of the act (accompanied by the knowledge of the nature of the intellect, not yet affirmed, not yet formally judged) and the judgment, "So it is." This datum, the justified attribution of being to this intelligible object, becomes now the object of the new reflection. This new reflection, therefore, considers the intuition of the nature of the intellect, the foundation of the nature of the act, the knowledge of which involves the judgment and leads to a new judgment, to a formal affirmation of the nature of the intellect. This process does not demand a new species, but it does demand the actual presence of these (specified) operations.

How must we formulate this judgment? The intuition of the nature of the act is the knowledge of the act of understanding itself and leads *for this reason* to the judgment: "So it is in reality." The structure, "the whole is greater than its parts," is *being, because it is intelligible*. In reflecting on the nature of the act of apprehension, the mind discovers this intelligibility, and this discovery leads to the affirmation, "This intelligible is being." In further reflecting on this result, the intellect sees that the intelligibility, as such, justifies the affirmation. This structure is being, because it is intelligible. And thus the reflection discovers the formal truth: *the intelligible is being (intelligibile est ens)*. This is the result of a formal abstraction. Just as the first reflection, by reason of a formal abstraction, discovers the formal connection (and, in consequence, necessary connection) between the elements of the material structure, so the second reflection discovers the formal connection between the elements present in the soul, namely, the intelligibility and the being affirmed by the judgment. And thus, in return, it discovers a formal abstraction which brings to light a formal, and hence necessary, connection between the intelligible and being.

Above (Chap. V, Sect. 4) we referred the reader to a place (*In Sent.*, I, D. 19, q. 5, a. 1, ad 2) where this process is formulated as follows:

The intelligible can never be understood under that aspect unless being is understood. (nunquam potest intelligi intelligibile, secundum hanc rationem, nisi intelligatur ens.)

The intelligible, that is, the concrete intelligible, for example, the relationship of the size of the whole to its part, cannot be known as intelligible, "under that aspect," without the mind knowing it as being; then can follow the "so it is." This is another formula for the universal principle.

From the principle, the intelligible is being, is inferred immediately by contraposition another, namely: Non-being is not intelligible. This principle is formulated in *Summa theologica*, I, q. 16, a. 3, ad 2:

Non-being has nothing in it by which it can be known. (Non ens non habet in se unde cognoscatur.)

Along with the first case, that of a necessary matter, we have seen another, that of impossible matter (*materia remota*); we found an example of this in a concrete case, that of four points on a straight line. In this figure we found, along with a case of intelligibility, another case where intelligibility is *excluded*. We called it a positive unintelligibility. Here we have immediately, "It is not so in reality." The structure described verbally is recognized as positively unintelligible, and *for this reason* unrealizable. In reflecting further on this case, we see immediately another principle of "truth itself": the nonintelligible is not being. The converse of this principle gives: being is intelligible. This principle necessarily takes in all being. Thus we read in *Contra gentiles*, II, 98:

The proper object of an intellect is intelligible being: and this includes all possible differences and species of being, because whatever can be is intelligible. (Est enim proprium obiectum intellectus ens intelligibile; quod quidem comprehendit omnes differentias et species entis possibiles; quidquid enim esse potest intelligi potest.)

We have then a double principle: the intelligible is being, and inversely, being is intelligible.

But between the two extremes, the *recognition* of intelligibility, and

the *recognition* of its exclusion, there is, for the human mind, a vast field, that of the cases where we see neither one nor the other. This is the domain of propositions which are not *per se*, or which at least are not known by us as such.

Above (Chap. VI, Sect. 2) we examined this case. Alongside of the case of the relation of size between the whole and its part, we considered the case of a swan, supposedly by nature green. In the latter case, the recognition of the character of the nexus is lacking; we see neither its necessity nor its impossibility. This is the reason why the judgment, "It is so," or "It is not so," is suspended. Even in this case, reflection can teach us something. This case implies that the principle, "The intelligible is being," is not only a *per se* proposition, but is also *primo*, inasmuch as the affirmation of being is paired with intelligibility. If intelligibility is lacking for our mind, it sees itself no longer authorized to pronounce a judgment, for intelligibility is sufficient to justify a judgment, but it is also necessary. Now if the principle, "The intelligible is being," is a proposition *per se et primo*, it is a simply convertible proposition whose conversion gives the principle, "Being is intelligible." This is a confirmation of a result obtained above.

There remains, however, for the human mind, the large field situated between the recognition of a necessity and the recognition of the impossibility of an objective disposition. To penetrate into this field of contingency (real or apparent), there remains to us indirect intellectual knowledge, the kind which comes to be only by means of the senses and which produces only *per accidens* propositions. We shall treat of them later. We shall have occasion to consider a method which can lead to their refinement, that is, to the discovery, if possible, of their necessity, which at first is not obvious.⁵

Let us sum up succinctly the exposition of the origin of our double principle. The reflection on the origin of a judgment on a concrete disposition which is recognized as necessary teaches us that the mind says, and recognizes its justification in saying, "This is real," because it sees the intelligibility of this disposition. This reflection, therefore, discovers in this concrete instance that intelligibility implies being. The formula which best keeps before our mind the origin of this discovery would be: "The intelligible is being." Similarly in the case of an impossible matter the reflection discovers that it is the positive unintelligibility of the proposed disposition which excludes real being; whence the formula: "The unintelligible is not being." The opposite of this yields: "Being is intelligible."

4. FORMULAS OF ST. THOMAS AND MODERN FORMULAS

This reflection has, then, given us two principles. Note, however, that the second formula, "Being is intelligible," cannot be understood in the sense that being must always be perfectly intelligible for our limited mind. St. Thomas reunites the two principles and gives them at the same time a more profound meaning; not only are "being" and "intelligible" always paired, but they are also proportioned to each other. This more profound formula evidently supposes more than the simple reflection we have considered; to arrive at it we must first have learned something of the grades of being, and this is a thesis of metaphysics. But this more advanced formula implies our formula. Besides, we must always understand that there is question here of intelligibility in itself and not with respect to us. St. Thomas insists upon this by using the Aristotelian comparison of our mind with the eyes of the owl. We read in *In Metaphysicam*, II, lect. 1, n. 282:

A difficulty occurs in the knowledge of truth, especially because of the imperfection of our intellect. By reason of this it happens that the intellect of our soul is related to immaterial beings, which among all things are most manifest according to their nature, as the eyes of owls are to the light of day.⁶ (*Difficultas accidit in cognitione veritatis, maxime propter defectum intellectus nostri. Ex quo contingit, quod intellectus animae nostrae hoc modo se habet ad entia immaterialia, quae inter omnia sunt maxime manifesta secundum suam naturam, sicut se habent oculi nycticoracum ad lucem diei.*)

The intrinsic intelligibility of an object increases with its perfection as being. Above (Chapter II, Section 5) we considered the dictum so often quoted by St. Thomas, one formulation of which is: "The disposition of things in truth is as their disposition in being." And we have seen that he understands it not only as describing a conformity in fact, but as a proportion between the thing's disposition or structure as cause and the truth as effect. Recall some passages cited above which say this expressly:

There is the same "disposition of things" in existence and in truth; hence the more fully things are beings, the truer they are. (*eadem est dispositio rerum in esse et in veritate; unde quae sunt magis entia sunt magis vera. De car., a. 9, ad 1.*)

For each thing is related to truth as it is to existence . . . and hence the first cause of existence is the first cause of truth and most true. (*unumquodque*

enim ita se habet ad veritatem sicut ad esse. . . . Et inde est quod prima causa essendi est prima causa veritatis et maxime vera. *In Sent.*, I, D. 19, q. 5, a. 1.)

Since, therefore, the disposition of things is the same in existence and in truth (*Metaphysics*, II), whatever are beings by participation are true by participation. (cum autem eadem sit dispositio rerum in esse sicut in veritate, ut dicitur in II *Met.*, quaecumque sunt entia per participationem sunt vera per participationem. *Sum. theol.*, I-II, q. 3, a. 7.)

Elsewhere also this same proportion is affirmed, for example:

Each thing is knowable to the extent it is being. Moreover, those things are more being which are more in act; hence these are more knowable by nature. (Unumquodque cognoscibile est in quantum est ens. Magis autem entia sunt quae sunt magis actu; unde ista maxime sunt cognoscibilia natura. *In Physica*, I, lect. 1, n. 7.)

So far as a thing falls short of being, so far does it fall short of being knowable. (Sicut deficit aliquid ab entitate, ita deficit a cognoscibilitate. *Sum. theol.*, I, q. 89, a. 7, ad 3.)

A thing is knowable so far as it has being. (Unumquodque, quantum habet de esse, tantum habet de cognoscibilitate. *Contra gent.*, I, 71.)

To the extent that a thing shares in being, to that extent it can be understood; and thus the notion of truth follows the notion of being. (Ex hoc quod aliquid habet de entitate, secundum hoc natum est aequari intellectui; et sic ratio veri sequitur rationem entis. *De ver.*, q. 1, a. 1, ad 5.)

The two principles, "The intelligible is being" and "Being is intelligible," are thus frequently cited by St. Thomas. It will not be necessary to insist on the relation of the two principles to the Thomist thesis which affirms the intelligibility of what is in act. Moreover, this relation is explicitly mentioned in St. Thomas:

Everything is knowable so far as it is in act, and not so far as it is in potentiality (*Met.* IX): for a thing is a being, and is true, and therefore knowable, according as it is in act. (Unumquodque cognoscibile est secundum quod est actu et non secundum quod est in potentia, ut dicitur in IX *Met.* Sic enim aliquid est ens et verum, quod sub cognitione cadit, prout actu est. *Sum. theol.*, I, q. 87, a. 1.)

These two principles have to do with the "truth itself" of which *Summa theologiae*, I, q. 84, a. 7, ad 3, speaks; they are discovered in fact in the

manner described in this response, namely, by a reflection on a judgment on a structure of which we have a phantasm. The thesis of the *In Sententias*, I, D. 23, q. 1, a. 2, ad 3, which admits only one likeness, that of a material disposition, is also verified there; similarly, the thesis, so often repeated, that the intellect is knowable only in this way.

The first of these two principles is purely noetic; it affirms a property of the *understanding*, but in relation to being; in fact, it is the principle which one modern formulation calls the *principle of evidence*. The second principle, the inverse of the first, has rather a metaphysical nature; for it affirms a property of being as such, but a property which has a relation to the intellect. Moderns call this the *principle of sufficient reason*, and in discovering it we have crossed the threshold of metaphysics.

We discover the two principles by the method demanded by St. Thomas for the knowledge of "truth itself"; that is, by reflecting on the origin of our knowledge of a truth relative to an intelligible objective structure, a material disposition which presupposes a phantasm:

Incorporeal things, of which there are no phantasms, are known to us by correlation with sensible bodies of which there are phantasms; thus we understand truth by considering a thing of which we possess the truth . . . and therefore, when we understand something about these things, we need to turn to phantasms of bodies, although there are no phantasms of the things themselves. (Incorporea quorum non sunt phantasmata, cognoscuntur a nobis per comparationem ad corpora sensibilia quorum sunt phantasmata; sicut veritatem intelligimus ex consideratione rei circa quam veritatem speculamur. . . . Et ideo cum de huiusmodi aliquid intelligimus, necesse habemus converti ad phantasmata corporum, licet ipsorum non sint phantasmata.)

We do not have a phantasm of the relation of the intellect to being, nor of the inverse relation; to understand these relations, we need a "conversion" to a phantasm, because this is necessary to understand a necessary truth, in which we can read these relations of the intellect.

These phantasms are the matter of an intellectual apprehension, whose consideration by the first reflection leads to the first judgments. They are the phantasms of the simplest mathematical dispositions. Such intuitions are the necessary conditions, for there is no other way leading to the first principles regarding "truth itself" or the "intellect itself." The phantasms, and the judgments on the dispositions which they represent, are necessary, but also sufficient, to enable us to arrive, in the prolonged reflection, at the justified affirmation of these two principles, under the formulas we have given them.

5. CONSEQUENCES OF THE METHOD OF ST. THOMAS

A more detailed study of the origin of these two principles will undoubtedly clarify two points of the Thomist doctrine. First the thesis which we quoted above (Chap. V, Sect. 2, 5), the thesis of *De veritate*, q. 10, a. 6 (which ought to be understood literally):

In its origin, all our knowledge consists in becoming aware of the first indemonstrable principles. The knowledge of these arises in us from sense. (Omnis nostra cognitio originaliter consistit in notitia primorum principiorum indemonstrabilium. Horum autem cognitio in nobis a sensu oritur.)

The knowledge of noetic principles can only come after the knowledge of principles derived from the data of the senses. But this study clarifies also the scope of the Thomist thesis regarding the dependence of our knowledge of immaterial things on the data of the senses. Above (Chap. I, Sect. 4) we learned from *De veritate*, q. 12, a. 3, ad 2:

Since the first principle of our knowledge is sense, it is necessary to resolve to sense in some way everything concerning which we judge. (Quia primum principium nostrae cognitionis est sensus, oportet ad sensum quodammodo resolvere omnia de quibus iudicamus.)

"Everything," hence not only the physical and mathematical judgments which St. Thomas so often has in mind, but the other judgments, that is, the metaphysical and noetic judgments, also demand a "resolution to sense," though only "in some way." We have had to do extensive research on this "mode," manner, and measure of the resolution. Now we are in a position to judge this mode, manner, and measure of the dependence of our intellect on the sense data, at least for these two principles.

We discover them by reflecting on our judgments regarding the more simple mathematical dispositions. Now these judgments are operations which, as we have seen, are perfected purely in the intellect by means of a reflection on the nature of the intellectual apprehension. This phase of the process is then purely intellectual; it does not include in itself any dependence upon the sense operations. In continuing the resolution (or analysis) we do find an extrinsic dependence. For in this life the intellectual apprehension is impossible without a phantasm, both in its origin and in its use; and to this extent the process depends upon the phantasm. This is why the intuition even of these principles depends on a phantasm,

but in an indirect manner. Moreover, this phantasm must be actual. But, as we have seen, and as we can verify for ourselves at any instant, the intuition of the nature of the apprehension consists only in the recognition of the necessity of the nexus. This necessity is not known sensitively, but is known only by the intellect. Neither does this intuition suppose that we know that the data of sense are a kind of *knowledge*; we have need of these data only as a "representation." To know these data as sense knowledge one must institute another reflection, which we shall study in the following chapter. For the discovery of the two principles, the senses have to furnish only the material which the intellectual apprehension needs; the rest is the work of the intellect alone. This is indeed the "in some way" of St. Thomas.

This is an important result, namely, that we discover these metaphysical and noetic principles and formulate them universally, *without supposing anything about the senses as cognoscitive faculties, a fortiori without supposing anything about their structure or manner of acting*. Nevertheless, there is an extrinsic dependence on sense data; even the nexus between the subject and predicate of the mathematical judgments, which is the starting point, should already be given in the phantasm. To achieve this, as we have seen (Chapter VI, Section 2), an "actualization of the disposition of the figure," hence a sensible experience, is necessary. But the motive of the judgment, and what justifies it, is not this sensible experience. We do not pronounce the mathematical judgment because of the testimony of the sense; the affirmation of the principles is totally independent of the value of this testimony. This is the meaning of the "in some way" of St. Thomas, which restricts the universality of the thesis that we should judge everything by a resolution to sense. This is without doubt the just mean between rationalism and empiricism.

This process enlightens us on a third point. It tells us clearly that we can know the "nature of the intellect," that is, its noetic nature, only from the noetic nature of its act, which is a similitude of its "proper object," a mathematical disposition of the material world; and because we know this noetic nature in such a manner, that is, by its functioning in the presence of an object, the best way of formulating these principles is by making use of these functions and saying: "The intelligible is being, being is intelligible." These formulas truly express the noetic nature, that is, the essential relations between intellect and being.

Let us compare the consequences of the method of St. Thomas with those of modern methods. According to St. Thomas we arrive at the

knowledge of these principles only by a consideration added to the first reflection of the human mind leading to judgments on a material and necessary structure. We *do not formulate* these principles at the beginning; we construct—historically and individually—a large part of the sciences without making use of these noetic principles; they direct us only as virtual judgments, as an intuition of the nature of the intellect, which always accompanies the intuition of the nature of the apprehension. Only a second reflection which continues the first and which presupposes it can open the way to the explicit affirmation of these principles; but when it is done, and then only, we begin the construction of two new sciences: the theory of knowledge and of metaphysics.

Such is the method we must follow to arrive at the knowledge of these principles. We cannot *begin* with these principles in their universality, but we must discover them in a judgment on a structure of a preceding science. But for this purpose the simplest judgment is, of itself, sufficient. Attempting to justify these principles by beginning with their universal formulas will lead to no result, perhaps even to disaster. Consider for a moment the effort of the great Balmes,⁷ which ended in the hopeless conclusion, "The principle of evidence is not evident." The reason is that a consideration and analysis of the abstract formula, "That which is evident is true," cannot of itself lead to any other conclusion.

How then can one grasp this principle intuitively? In a manner analogous to the manner in which one grasps the first mathematical principles. In a mathematical datum—a straight line, with its extension, its color, its form, its surroundings, and the like—we have the intuition that the divisibility actuated in the phantasm by the construction of a point springs from only one of these determinations, from one of these "forms," namely, from its extension, and not from the other forms. It is necessarily divisible as extended, not as colored, and so on. Now the same observation is made in the second reflection, the reflection whose object is *this judgment* concerning this concrete datum. There we have the intuition that our affirmation of this disposition as being does not come from its beauty, nor its ugliness, nor from its goodness, nor from its simplicity or complexity, nor from any property other than the fact that it is intelligible. We see the connection between being and intelligibility. The intelligibility is one of the multiple forms of this complex object, the form which matters for our intuition of being; it is being *as (qua)* intelligible. And thus in this datum we grasp that the intelligible (every intelligible) is

being. These forms are necessarily connected among themselves. There is question once more of a formal abstraction.

But the process implies a property which explains why it is also impossible to begin with the universal formula. We can discover this form, the intelligibility, *in* its concrete matter (the content of the first mathematical judgment), and then we see the necessary connection of its predicate (being) with this form and its substrate, the intelligible; but we cannot separate this form from its matter, not even in the intellect, in such a manner that it remains clear for us. If the content of this first judgment disappears from our mind, then the intelligibility itself disappears from it, and in consequence the vision of its necessary connection with being. In fine, this is the doctrine of St. Thomas, that we know our intellect only by its act, a species which is the likeness of a material object. As long as we have in mind the concrete case, we see the universal truth of the abstract principle, "The intelligible is being," and then we can formulate it universally, independently of the concrete case. But if the concrete case disappears from the mind, then there remains only the *memory* of the antecedent intuition, now tied to the words of the formula, as a phantasm. But one cannot *begin* with a memory. And thus it seems clear why one cannot take, as a starting point, the universal formula; and why it is impossible to grasp in the universal formula its truth.

6. LOGICAL PRINCIPLES

This last result enables us to put our finger on the difference between these principles and those of formal logic, which nevertheless, as we have seen (Chap. VI, Sect. 4), have an analogous origin. We said that one sees the validity of syllogizing in each concrete case having a specific content. We cannot demand that the view of the abstract form of the syllogism, and hence of the universal logical principle, be given to us ahead of time in such wise that the validity of the specific syllogism, with a concrete content, would be seen as an application of the universal principle; such a demand would lead to an absurd infinite regress. From this point of view, there is conformity between our intuition of the form of the syllogism and that of the truth of our two noetic-metaphysical principles.

But there is a difference which can further clarify the meaning of our last result. When we express these principles verbally, by saying, for example, "The intelligible is being," we omit the specific content of the

intelligible thing in which we discovered this truth, and hence there disappears at the same time the intuition of the connection between the subject and the predicate of this proposition which the principle expresses. In consequence, the intellectual view of the truth of this principle itself also disappears, and only the memory of it remains; the form which implied the nexus of the principle disappears with the determined content of the apprehension.

This is not true of the formulas of formal logic, and it is on this property, we believe, that the possibility of ordinary formal logic rests. For in ordinary scientific life, we immediately see the validity of a good specific syllogism if it is not too complicated; and by this intuition we know the validity of the universal form. But we can cause this specific content to disappear *without the disappearance of the form which implies this necessary nexus*. Thus we understand the legitimacy of this form in *Barbara*; every M is P, every S is M, hence every S is P. In this schema all specific content has disappeared; but there remains this much of it, that each of the symbols, M, P, and S, has twice the same sense; but there is no determination of what that sense is, except that it must be such that the concepts which the symbols represent can be the subject and predicate, respectively, of a proposition. Moreover, the properties of the propositions and of their terms remain known. If this much of the content were also to disappear, then the structure and form of the syllogism would disappear and with it our intuition of its validity. One can immediately see that this case is different from that of the noetic principles.

The same must be said of the universal syllogistic principle formulated by Aristotle in the *Prior Analytics*, I, 4, 25b 39-40:

If A is predicated of all B, and B of all C, A must be predicated of all C.

There is no question here, as above, of a *schema*, but of a universal *principle*, a conditional proposition, which expresses the validity of the schema. This principle remains intuitively true after the disappearance of all specification. In extension: if A is materially identical with B, and B with C, then A is materially identical with C. In comprehension: if the form B springs from the form A, and C from B, then C springs from the form A.

The same is true for other formulas of formal logic, for they manifest a certain "conservation of form" in the transition to a universal expression of the formal principles with the aid of symbols. It is on this "conserva-

tion of form" in the symbols that a pure formal logic such as is practiced (in part) by means of symbols, is made possible. Logistics wants to make this use of symbols more universal. A theory of knowledge which would be purely formal or purely logistic is impossible, because the noetic principles do not admit of this "conservation of form." This is the same reason which makes impossible a theory of knowledge beginning only with universal principles.

This characteristic difference—the "conservation of the form" of logical principles, in passing to formulas which abstract from specific content—has not been, so far as we know, the object of a detailed research. We would like to call this operation which is done with the "conservation of the form" a "symbolic abstraction." It is doubtless an abstraction, but the symbols used are sufficiently concrete so that the form and the intuition of the form are preserved.

These concrete symbols are always necessary, because we have to have a subject of the form. We must however take note of the fact that when we use symbols—whether they be the common words of language, as in the greater part of classical logic, or whether they be more artificial means of expression, as the letters which even Aristotle used to use instead of these terms, or whether they be the symbols of logistics or those of algebra—when we use symbols, there is no need to keep in mind any determined content of what is symbolized; hence there is no need of the similitude of an object, and hence there is no need of the corresponding phantasm demanded by St. Thomas. Nevertheless, there must be some phantasm (with its corresponding species); and this is why there has to be something concrete. But now the phantasm is of the symbols themselves, and these have to be such as to enable us to have an intuition of the nature of these operations with symbols; it is on this intuition that the *rules* of logic, of logistics, and of algebra depend. Here again we see the difference between the abstract noetic principles and the principles of formal logic. In the phantasms of the words of a language or the phantasms of other symbols, only the principles of formal logic preserve the intelligible form; in the phantasms of words expressing the noetic principles this form disappears, and we cannot make use of them or draw conclusions from them except to the extent that we have understood them at some other time and hence with the aid of memory (see Chapter I, Section 3). This fact, however, can lead to valuable results. We believe that it would be worth while examining more in detail symbolic abstraction; but this is not the place for the examination.⁸

7. SOME POINTS CONCERNING THE HISTORY OF THE TWO PRINCIPLES

The two principles regarding "truth itself" which are brought out by the Thomist analysis of the origin of the judgment are present to the mind of man in constructing the first sciences; but they are not explicitly affirmed there, still less are they formulized. But once they have been brought out by the prolonged reflection, and expressed in propositions, they serve not only for the further construction of these new sciences, noetics, metaphysics, and logic, but also for the critical development of the ancient sciences. Some philosophers, however, have gone astray in these matters. Let us recall certain cases we have met in our researches in natural philosophy.

To begin with, we can unite the two principles we have discovered into a single formula: "The intelligible, and it alone, is being." This double principle was formulated for the first time by the philosopher who has been called the first metaphysician, Parmenides. He expressed it in the celebrated formula: "What can be thought, can be." This affirms identity between the "intelligible" and "being"—hence the principle, "The intelligible is being," and the principle, "Being is intelligible."⁹

It took a penetrating analysis on the part of Parmenides to formulate so exactly this double principle which connects being with intelligibility, but in applying the principle he erred badly. Let us note two of his conclusions. He denies the multiplicity and the variability of things, despite the clear testimony of the senses, because he cannot find any intelligibility in multiplicity and change; but being should be intelligible. In consequence, in his theory of knowledge, the testimony of the senses, and consequently the senses as witnesses, are declared to be without value. The intellectual critique of the senses begins with Parmenides, but this beginning, even though its starting point was a principle of great value, was not happy. Aristotle, by means of a more penetrating metaphysical analysis, was successful in solving the antinomy. Multiplicity found an explanation, and hence became intelligible, by his theory of the analogy of being; mutability is intelligible on condition that the mutable being be composed, and this condition leads to his great discovery of real subjective potency. In this way the difficulty which forced Parmenides to his second conclusion found its solution without prejudice to Parmenides' important discovery of the double principle. It is rather remarkable that this penetrating critique of sense cognition does not find a place in modern treatises; any more than the solution of the difficulty.¹⁰

Another inexact application of the principle of intelligibility has been the cause of an erroneous solution of the problem of the so-called secondary qualities. We find the problem already in Democritus, but it is Descartes who has given the best analysis of the problem, even though his analysis was insufficient. After him, there was Leibniz. They both compare our intellectual grasp of the extended and its consequences with the intellectual grasp of qualities. Thus Descartes shows the great difference in their intelligibility by pointing to the vast science of quantity, geometry, and to the lack of such a science for quality. Quantity is intelligible, the qualities are not. That is why quantity is being (that is, *cui competit esse*). Descartes says expressly, "It can exist." On the other hand, qualities do not seem to him intelligible; and this means for him that they seem to be positively unintelligible, and that is why for him qualities are not beings.

However, a further analysis discovers that the secondary qualities are intelligible for us, even though they are not as intelligible as quantity, on which geometry is based. Red and green, without doubt, belong to the same genus, and this genus is other than that of sounds. And this is certainly an intellectual perception, however feeble it may be; for St. Thomas the relation of the genus to the species belongs to the absolute necessities (see Chap. IV, Sect. 2; *Cont. gent.*, II, 25).

But perhaps Democritus, Descartes, and Leibniz could reduce this difference, hypothetically, to something geometrical; if, for example, to "red" and "green" there correspond respectively square and round particles, or generally speaking, according to Leibniz, a diverse "contexture," we should have an intelligible relation of genus to species; and this without any real secondary quality. However, a more penetrating analysis teaches us more. These qualities have an "intensity," and intensity cannot be reduced to something geometrical. Moreover, intensity is intelligible, even for us. This can be demonstrated by the *per se* judgments which we have regarding these intensities, and which suppose the understanding of a necessary nexus. These judgments render possible deductions according to a method which has been developed by the logic of relations. The secondary qualities are intelligible, at least as regards their genus, intensive quality; hence they are beings.

We here find the solution to a difficulty in the results of nineteenth-century physics. Physicists had been successful in reducing all these secondary qualities to movements, to irregular movements and to vibrations. But they forgot that these movements themselves implied intensive fac-

tors. If a sufficient critical analysis brings this out, then the apparent difficulty becomes a confirmation of the reality of secondary qualities, or intensities. The application of the principle of intelligibility of St. Thomas—which is that of Parmenides, of Democritus, of Descartes, and of Leibniz—establishes the reality of purely intensive qualities which are not geometrical; and it guarantees complete agreement between what we understand and the results of physics. This is a great merit of the principle.¹¹

Once again we meet an astonishing fact. The modern theories of knowledge, most diverse in tendency, all completely neglect the distinction between the specific and the generic factors of our knowledge of secondary qualities; and yet, even though we do not know the specific differences intellectually, yet the genus is perfectly intelligible for us (as witness our *per se* judgments of intensities). Neither do they ever speak of an analysis of the fact with the aid of the principles of intelligibility, which in the beginnings of criteriology had rightly played a preponderant role.

A third conflict between sense experience and the demands of the intellect had a still more serious character. Descartes had recognized extension and its consequences as real beings because of their intelligibility. The same position had been commonly recognized, without this analysis, under this form: geometry is the type of an absolutely certain science and that is why its object is real. Later, as a consequence of the difficulties of continuity, doubts arose concerning the reality of the extended; because of these difficulties, seemingly insoluble to many, the continuum seemed to lose its intelligibility. Hence the continuum and with it all the extended could not be real. This conflict was undoubtedly more tragic. The principle of intelligibility seems to demand that if any content of our apprehension is being, certainly the extended is, since it is the first object in which we discover an intelligible nexus. And now these difficulties seemed to make continuity unintelligible. Without continuity, the extended is impossible; this last conception was an essential factor of the antinomies. These difficulties do not destroy the original intelligibility, neither do they prove that this intelligibility has no foundation. No, they leave it intact and even make use of it; but, basing themselves on demands of a metaphysical (or pseudo-metaphysical) nature, they seem to conclude of necessity to the unintelligibility of the continuum; and yet being should be intelligible. Here is the tragic character of the conflict: the second part of the principle of intelligibility seems to be in contradiction with the first. The question here is no longer only of the validity of sense experience, but of the principle of intelligibility itself, and of the value of

the intellect. This is why this principle is not sufficiently safeguarded by the idealist solutions of the antinomies.

The Scholastics had not neglected the difficulties of the continuum. These difficulties had been the cause of errors, even though Aristotle had already given a definitive solution to the apparent antinomies. But in Scholasticism the principle of intelligibility remained intact, and with it the reality of the extended. After the Middle Ages, one can follow the development of these antinomies, starting with Bayle (who fully exploited these Scholastic difficulties) up to Kant, and up to more recent philosophers—a development which leads to the negation of extension and its consequences. And yet the extended loses nothing of its original and fundamental intelligibility; that is why the principle of intelligibility is not sufficiently safeguarded in the idealist solution of the antinomies. The Aristotelian notion of potency resolves this conflict, and it guarantees the validity of the principle of intelligibility for extended being, both as being and as extended.¹² This solution saves not only the reality of the extended and the validity of sense knowledge of the extended, but also and especially the principle of intelligibility and intellectual knowledge itself.

Again we are astounded that many modern theories of knowledge seem to ignore this history. Whether they be Kantian or anti-Kantian, they neglect this conflict which, for Kant, was so fundamental, and with practically no exception they ignore the Aristotelian solution. Whether we be for or against Kant, such an approach will not be helpful for an exact appreciation of Kantian doctrine.

Relative to these three problems there exists a parallelism between the history of natural philosophy, of critica, and of much of metaphysics. In the modern theories of knowledge, we find hardly a trace of these fundamental problems; they do not examine causes, but only their effects. For a profound treatment of these problems, there is need of a knowledge of natural philosophy and of its history.

A fourth conflict, where the principle of intelligibility plays a role, is of very recent date. This conflict has not led to negation of the validity of sense experience; on the contrary, it has led to an overestimation of sense experience. We refer to the first principle of Neopositivism. This principle holds that in a quantitative object what cannot "in principle" be measured does not exist. It has been applied to certain cases, two of which have become famous. According to the theory of relativity, the temporal coincidence of two events, distant from one another, cannot be measured exactly; and according to the "relation of inexactitude" (Heisen-

berg's principle of indeterminacy), the spatial coincidence of a material point with a point of space cannot be measured exactly if one wishes at the same time to make an exact measurement of the velocity. And this is why it is said that neither simultaneity nor the simultaneous determination of position and velocity exist objectively in nature.

To begin with, this is an application of the principle of intelligibility. For, in quantitative things, "to be measured" is identical with "to be known"; for even according to St. Thomas, "measure" is "that by which the quantity of a thing is known" (*In Met.*, X, lect. 2, nn. 1937 sq.). If then something quantitative is not "in principle" *measurable*, it cannot be known intellectually. Hence, according to the principle of intelligibility it is not a being.

Nevertheless, we must be prudent and examine the nature of this "principle" according to which it is not measurable. The analysis will teach us two things. To begin with, in both cases, this "principle" looks *only* to the results of human experiments, which depend on natural laws; it has nothing to do with the intrinsic intelligibility of things. If this is true, the conclusion which Neopositivism draws is really not an application of the principle of intelligibility; hence the conclusion is *illicit*. A more profound analysis teaches us that this conclusion of Neopositivism is also *false*. These quantitative relations are intelligible in themselves; and hence we must say that they are beings, they can exist.

Indeed, probably we shall never be able to measure these coincidences with an absolute exactitude—by reason of our dependence upon sense observation and the laws of nature which govern this observation—any more than we can measure with absolute exactitude the ratio of two lengths, which nevertheless are very real, even according to the Neopositivists. This is precisely what we are taught by the principle of intelligibility, which enables us, by means of an absolutely sure intuition, to go beyond the data of sense experience.¹³

Mention should be made of another application of the principle of intelligibility. One can deduce from it that all continued movement, called movement of inertia, itself demands an active cause continually acting. We do not say a "force" in the sense of classical mechanics (since by "force" is meant the cause of acceleration). The possibility of movement under its passive aspect, hence its reality, can be deduced from the real properties of the extended; it is immediately evident as a *proprium* of the extended that an extended thing can be in contact with another and also be in changing contact; now this changing contact is movement under its

passive aspect. Hence every extended thing can be moved relative to another extended thing. But, on reflecting, one sees that this passive movement, although intelligible, is not in itself and by itself completely intelligible, because it is a change. Hence, if it actually takes place there must be *another thing* which supplies this defect of intelligibility. That other thing is the active cause. This grasp of the principle of causality is an immediate consequence of the principle of intelligibility.

This process shows that man, in his natural attitude, arrives at an intuition of the principle of causality with great facility. It shows besides that an important part of the principle of causality consists precisely in this, that movement and all change demands the existence of *another thing*. Whence the famous Aristotelian formula: "Whatever is moved is moved by something else" (*omne quod movetur ab alio movetur*). This contains the solution to a difficulty, so often proposed since Hume, how can one thing prove the existence of another thing? And this is true even for inertial motion (uniform motion in a straight line), despite the common interpretation of Newtonian mechanics, an interpretation wrongly admitted by a number of philosophers.¹⁴

This principle is, then, a truth which reveals itself to the human mind in the second reflection, whose object is the nature of truth. This reflection presupposes only the first reflection, which puts us in a position to judge the content of a structure abstracted from the phantasm. The question can be asked whether the principle of contradiction itself is discovered in the same way. Clearly, the answer should be affirmative; it is discovered just as easily, and in an analogous fashion. Negation naturally supposes a limited mind; a perfect intelligence indeed knows the negations of the imperfect mind, but for its knowledge it has no need of negations. Negation is a sign of an unsuccessful attempt, or at least of a question which the intellect puts to itself. The concept of a negation is formed after such an experience. Above we have already met with the opposition between "to understand" and "not to understand"; between "to understand" and "to understand that not." It is in such experiences that the principle of contradiction manifests itself for the mind and for the thing. Let us note one point. In the sixth lesson of the fourth book of the *Metaphysics*, St. Thomas speaks of the conditions which every first principle must satisfy. The third is that the grasp of a principle should not be acquired "by means of a demonstration or in another similar way" (*per demonstrationem vel alio modo simili*), but it is necessary that it "come, as it were, by nature to the one who possesses it" (*adveniat quasi per naturam habenti ipsum*).

He then describes the process which leads to such a grasp of the principle; it is the well-known Aristotelian process referred to above: sense, memory, experience, followed by the abstraction of a disposition. We read (n. 599):

By means of the natural light of the agent intellect the first principles become known; neither are they acquired by reasonings, but only by reason of the fact that their terms become known. And this takes place because from sense arises memory and from memory experience and from experience the knowledge of these terms, and when these are known, such common propositions become known, and these are the principles of the arts and the sciences. (Ex ipso lumine naturali intellectus agentis prima principia fiunt cognita, nec acquiruntur per ratiocinationes, sed solum per hoc quod eorum termini innotescunt. Quod quidem fit per hoc, quod a sensibilibus accipitur memoria et a memoria experimentum et ab experimento illorum terminorum cognitio, quibus cognitis cognoscuntur huiusmodi propositiones communes, quae sunt artium et scientiarum principia.)

This is the ordinary process as it is described in the last chapter of the *Posterior Analytics* and in the first chapter of the *Metaphysics*. St. Thomas makes this doctrine his own without any restrictions. But what is remarkable is that St. Thomas subjects to this process even the "most certain principle" (*certissimum principium*), the principle of contradiction, and he finds it vindicated. This principle itself is discovered in the same second reflection, the object of which is the nature of truth (*veritas ipsa*) as known in the consideration of the mind's proper object, the material objective structure. Like the other first principles, the principle of contradiction governs both the intellect and being, and the relations between the two. In consequence of the ease with which these principles are known—not always formulated however—they belong to the human mind "as by nature" (*adveniunt quasi per naturam*).

CHAPTER VIII

Sense Judgment

WE HAVE SEEN that different reflections on one and the same apprehension can lead to different judgments. The starting point is always a determined reflection, the object of which is the nature of the apprehension of the structure of a material object, a reflection which leads to a judgment on this structure. The other reflections follow this one. One of the subsequent reflections has as its object the *noetic* nature of the intellect, which is discovered in the nature of the act. The fruit of this reflection is the judgment on this nature; and since the nature of the intellect is known by its functioning in regard to its proper object, these first judgments, both noetic and metaphysical, have the form which we have seen. Another reflection penetrates to the source of the intellectual apprehension, that is, to the sense data, the phantasm, and further, to the origin of the phantasm, in the exterior senses.

The first judgments, those concerning the necessary relations of a material object, as well as the principles of intelligibility, presuppose nothing concerning the value of sense cognition; they find all their justification within the sphere of the intellect alone and do not suppose a reflection reaching the senses. The reflection which penetrates to the sense faculties will have a double role; for it will apply the first universal judgments to particular cases (and thus there will result necessary singular judgments), but especially it will be able to discover the noetic nature of sense cognition, and through this, the noetic nature of the sense faculties of man. Through this last we shall be able to discover the justification for these singular judgments, and especially which judgments of external perception can be justified.

This intellectual reflection on the operations of the sense faculties, and the judgments which result from it, will be the object of the following chapters. But first we shall have to consider briefly another matter. These judgments, not only the necessary singular judgments, but also the judgments of pure perception, are always judgments of the intellect. For,

according to St. Thomas, a judgment in the strict sense is always an operation of the intellect. Nevertheless, he often speaks of a sense judgment (*iudicium sensus*); but this is never a true judgment in the proper meaning of the word. This chapter will be devoted to a summary consideration, a kind of bird's-eye view, of the "sense judgment."

1. THE "SENSE JUDGMENT" IS NOT A TRUE JUDGMENT¹

The sense judgment is not, strictly speaking, a judgment at all. We have seen above that the judgment is concerned with existence, in opposition to the apprehension, which has reference to the quiddity (Chap. II). Naturally, the apprehension also attains the "aspect of being" (*ratio entis*), but the recognition of the "being," the pronouncement, "So it is," is proper to the judgment, and that is why "the judgment is concerned with existence." Now it is a familiar Thomist thesis that the sense cannot attain the "aspect of being" (*ratio entis*). As we read in *In Sententias*, I, D. 19, q. 5, a. 1, ad 6:

Although existence is in sensible things, the sense does not attain the notion of existing nor the aspect of being, just as it does not attain any substantial form except *per accidens*, but only the sensible accidents. (*Quamvis esse sit in rebus sensibilibus, tamen rationem essendi, vel intentionem entis, sensus non apprehendit, sicut nec aliquam formam substantialem, nisi per accidens, sed tantum accidentia sensibilia.*)

The "aspect of being" (*intentio entis*) is, then, not attained by the sense; the sense cannot pronounce the "So it is" of the true judgment. We must not think that the addition, *per accidens*, which seems to limit the negation, leaves some possibility of a true sense judgment. No, the expression has here another meaning. It means only that the being is sensible *per accidens*, that is to say, that there is *another* faculty, namely the intellect, which discovers the aspect of being in the sense data and can attribute existence to them. The meaning of the expression "sensible *per accidens*" is explained at great length in *In De Anima*, II, lect. 13, nn. 395 sq.). It is demanded for a sensible *per accidens*: (1) that it be accidentally connected with what is sensible *per se*; (2) that it be attained in fact, and *per se*, by another faculty of the same subject which perceives this "sensible *per se*." Thus we can say, "I see the sweet thing":

The sweet is visible *per accidens* inasmuch as the sweet happens to be white and this is apprehended by sight, and the sweet itself *per se* is known by an-

other sense, the taste. (*dulce est visibile per accidens, in quantum dulce accidit albo, quod apprehenditur visu, et ipsum dulce per se cognoscitur ab alio sensu scilicet a gustu.*)

But this is as yet only the "visible *per accidens*" and not the "sensible *per accidens*" in general. This is had only when a third condition is verified, namely (3) when this second faculty is the intellect. And then it is further necessary that the intellect understand immediately the sensible *per accidens*, on the occasion of the sense perception of the sensible *per se* to which the sensible *per accidens* is connected (n. 396):

We cannot call sensible *per accidens* everything which the intellect can apprehend in the sensible thing, but only what is immediately apprehended by the intellect on the occasion of a thing's being sensed. Just as when immediately on my seeing someone speaking or moving, I apprehend with my intellect his life, and hence I can say that I see him living. (*Non tamen omne quod intellectu apprehendi potest in re sensibili, potest dici sensibile per accidens, sed statim quod ad occursum rei sensatae apprehenditur intellectu. Sicut statim cum video aliquem loquentem, vel movere seipsum, apprehendo per intellectum vitam eius, unde possum dicere quod video eum vivere.*)

If, therefore, the aspect of being is said to be attained *per accidens* by the sense, this really means that the intellect alone, on the occasion of a sense perception, attains this aspect, and that it can then say "So it is." This is indeed a judgment in the strict sense.² The sense, however, cannot attain the aspect of being and hence it cannot affirm existence; it cannot, strictly speaking, make a judgment. This reason is connected with another. We have often heard that the judgment is not made until the intellect, in the first reflection, has seen the "truth" of its apprehension, or its "proportion to the thing" or its likeness with the thing. Now whenever St. Thomas demands this condition, he always adds that the sense cannot fulfil it; this is reserved for the intellect. For this reason the act of judging is reserved to the intellect. This is why he adds what follows to the words cited from in *In Sententias*, I, D. 19, q. 5, a. 1, ad 6:

Thus, although truth is in sensible things, inasmuch as we say there is truth in things, nevertheless, the aspect of truth is perceived by the intellect alone. (*Ita etiam quamvis sit veritas in rebus sensibilibus, prout dicitur esse veritas in rebus, tamen intentio veritatis solo intellectu percipitur.*)

There is another, deeper reason which explains these words, one which we have often heard: to know the "truth" of a representation, the "aspect

of truth," the faculty must be able to discover the nature of the act. Now it is only the intellect which can do this and not the sense. This is why the sense cannot know "truth," why it cannot discover the "aspect of being" or "existence," and why it cannot judge.

The same doctrine is expressed in another way. The existence is indicated by affirmation, just as the nonexistence by negation, as we have read in the *In Perihermeneias*, I, 8, n. 21: "To signify existence is the property of affirmation and to signify nonexistence is the property of negation." It is not strange, therefore, that affirmation and negation in the strict sense are reserved to the intellect. And so when St. Thomas, following Aristotle (*In De Anima*, III, lect. 12, nn. 767, 772), attributes to the sense an affirmation and negation, this is not to be taken strictly, for:

To make an affirmation or negation is proper to the intellect. (Facere affirmationem et negationem est proprium intellectus.)

Now, to affirm and to deny is to judge; hence, to judge belongs properly to the intellect.

All of these reasons are summed up in a text from *In De Anima*, III, lect. 13, n. 793. St. Thomas speaks there only of the imagination, but, *a fortiori*, what is said is true of the external senses:

The imagination is different from the affirmation or negation of the intellect, because there is already truth in the composition of intelligibles, and this is not so in the imagination. For it belongs to the intellect alone to know the true and the false. (Phantasia est alterum ab affirmatione vel negatione intellectus, quia in complexione intelligibilium iam est verum et falsum; quod non est in phantasia. Nam cognoscere verum et falsum est solius intellectus.)

The composition of imagination differs from the composition of the intellect, which is the judgment, an affirmation or a negation; only the intellect will have a judgment which consists in a *complexio*, that is to say, an application of the represented content to the thing (*complexum per affirmationem*, as we were told before, Chapter I, Section 2). Only in the judgment is there formal truth (Chapter II, Section 1), and not in the imagination, for formal truth is "known truth," and this knowledge is reserved to the intellect.

2. THE TWO FUNCTIONS OF SENSE KNOWLEDGE

Only the intellect, then, can judge in the strict meaning of the word; and yet St. Thomas frequently speaks of a "sense judgment" (*iudicium sen-*

sus). What then is the meaning of this expression? A first, but altogether improper, meaning has already been explained to us by the passage from *In De Anima*, n. 369. Just as the "being" (and the essence and the substantial form), so also "life" cannot be known except by the intellect; nevertheless, "life" is a sensible *per accidens* inasmuch as we can say, "I see the man living." But this is only an elliptical expression. The judgment, "He lives," is an operation of the intellect alone; it is attributed to the sense because the intellect pronounces this judgment immediately as a consequence of what is seen.

But there are other cases where an operation of the sense itself is called a "judgment," and that in consequence of an analogy with the true judgment. We must distinguish two cases, connected with the double function of sensibility in man. This distinction, which is important for all that follows, is described in *In Metaphysicam*, I, lect. 1, n. 5:

Since the senses serve us in two ways, namely, for the knowledge of things and for utility for life, they are loved by us for themselves, inasmuch as they are cognoscitive and also because they are useful for life. (Cum sensus ad duo nobis deserviant, scilicet ad cognitionem rerum et ad utilitatem vitae, diliguntur a nobis propter seipsos, in quantum cognoscitivi sunt et etiam propter hoc quod utilitatem ad vitam conferunt.)

As their first end, the senses contribute to our "knowledge of things"; and we must understand by this our *scientific* cognition. According to the context this means, especially, pure or disinterested science, and above all, metaphysics. Concerning this we were earlier told (n. 4):

To seek a science not useful for something else, such as this science [metaphysics], is not a vain thing. (Quaerere scientiam non propter aliud utilem, qualis est haec scientia [metaphysica], non est vanum.)

St. Thomas, therefore, is not speaking of a "sense cognition" of things. Moreover, such cognition would not be opposed to the second member of the alternative, for the senses only contribute to the "utility for life" by sense knowledge. The senses of irrational animals have this purely practical purpose.

This double purpose of sense cognition is also described in *Summa theologica*, I-II, q. 31, a. 6, where reference is made to the passage of the *Metaphysics*, and in *Summa theologica*, I, q. 91, a. 3, ad 3. The two citations attribute a "judgment" to the senses. *Summa theologica*, II-II, q. 167, a. 2, expresses the distinction of the two functions by the terms,

"to the upkeep of the body" and "to intellective knowledge, whether speculative or practical."

To begin with, let us examine the task of having "utility for life" (*utilitas vitae*). This is discussed throughout Lesson 12, Book III of the *In De Anima*, where sense cognition is compared to intelligence. We find there an analogy, a similarity joined to differences. There is question of biological usefulness. The sense "apprehends" a sensible thing as "helpful or harmful," and from this arises pleasure or pain, and finally "desire or flight" (n. 769). The second phase is missing in the analogous intellectual process (nn. 770 sq.):

When the intellect apprehends something, affirming or denying it to be good or bad, it avoids or seeks that thing. (Cum intellectus apprehendit aliquid, affirmans vel negans esse bonum vel malum, fugit aut prosequitur.)

The appetitive part of the process ("it avoids or seeks the thing") follows immediately on the judgment of the intellect, without the second intermediate phase. The analogue of this *judgment* of the intellect is the cognoscitive part of the sense process; that is why this latter process is called a "sense judgment" (n. 767):

The simple apprehension and judgment of sense are similar to the speculation of the intellect. (Simplex apprehensio et iudicium sensus assimilantur speculationi intellectus.)

The "simple" refers also to the judgment; for it indicates the abstraction which must be made from the appetitive process. The analogy is then described as follows:

When the sense senses something pleasurable or distasteful, as it were affirming or denying what is perceived by the sense to be pleasurable or distasteful, then it seeks it through the appetite, that is, it desires or avoids it. And he expressly says "(as it were) affirming or denying," because to make an affirmation or negation is proper to the intellect, as was said above. But the sense does something similar to this when it apprehends something as pleasurable or distasteful. (Quando sensus sentit aliquid delectabile aut triste, quasi affirmans et negans id quod sensu percipitur, esse delectabile vel triste, tunc prosequitur per appetitum, idest desiderat aut fugit. Et dicit signanter, "aut affirmans aut negans,"³ quia facere affirmationem et negationem est proprium intellectus, ut supra dictum est. Sed sensus facit aliquid simile huic quando apprehendit aliquid ut delectabile aut triste.)

This apprehension of the perceived thing as pleasurable or distasteful, the agreeable or disagreeable impression, is the sense correlative of the judgment of the intellect. The object is good, or the object is bad. The

operations of both sense and intellect condition an activity, but the operation of sense serves only for the "utility for life." One can see that the sense judgment has only a remote analogy with a true judgment, namely, that of the intellect. It is something like a mechanical separating device, but one which is directed by sense impressions. The process directs those activities of animal life, in man and in irrational animals, which are directed, sometimes by very complicated organs, to an *end* which is not known as such. These are the instinctive activities. In the world of irrational animals, this activity is attributed to the "estimative sense" which acts "by a certain natural instinct" (*Sum. theol.*, I, q. 78, a. 4); in man there is, besides pure instinct (*In Sent.*, II, D. 20, q. 2, a. 2, ad 5), also the "cogitative sense"; but this latter is under the influence of the intellect and that is why it is called also the "particular reasoning power" (*ratio particularis*). These instinctive activities need only a quasi judgment that says practically that the object is good or bad and are directed uniquely to the "utility for life." This sense knowledge can be intermingled with many subjective elements, and does not lead directly to an intellectual view. It can be the object of scientific research, according to scientific methods, just as any *exterior* object. These "judgments" are not in the field of noetics, and they are not the object of noetic methods. They can only be examined in accordance with methods which investigate finality in nature.

The other function of the senses of man regards the "knowledge of things," namely, the intellectual cognition which has its origin in sense data. Even in this function, St. Thomas speaks of a sense judgment. Its bearing has been brought out in *Summa theologica*, I, q. 78, a. 4, ad 2:

The proper sense judges of the proper sensible by discerning it from other things which come under the same sense; for instance, by discerning white from black or from green. But neither sight nor taste can discern white from sweet; because what distinguishes between two things must know both. Wherefore the discerning judgment must be assigned to the common sense; to which, as to a common term, all apprehensions of the sense must be referred. (*Sensus proprius iudicat de sensibili proprio, discernendo ipsum ab aliis qui cadunt sub eodem sensu, sicut discernendo album a nigro vel a viridi. Sed discernere album a dulci non potest neque visus neque gustus; quia oportet quod qui inter aliqua discernit, utrumque cognoscat. Unde oportet ad sensum communem pertinere discretionis iudicium, ad quem referantur sicut ad communem terminum, omnes apprehensiones sensuum.*)

We see that a "judgment" is attributed as well to the external senses as to the "common sense." But at the same time we see that this must

be interpreted; it is a "discerning" of the diverse apprehensions of the senses. Finally, we see the condition which this "discerning" sense must satisfy: it must itself know the two contents of the diverse apprehensions. The "judging" is, then, in this case, only an apprehension of a diversity.⁴

The same doctrine is amply developed in Lesson 3 of the *In De Anima*, III. There, from these data, and from this condition, the existence of the common sense is deduced. The sense judgment and this discernment are always identified. Finally, even for the "judgment" of the external sense there is required the influence of the "common sense" as the source of all sensibility (n. 613):

The final judgment and final discernment belong to the common sense.
(Ultimum iudicium et ultima discretio pertinet ad sensum communem.)

Everywhere the condition is that the specifically or generically different sensibles must be known simultaneously by the same sense; then this sense knows their difference. But this knowledge is a purely sensible apprehension like the others (*In De An.*, III, lect. 8, n. 712), it is a "sensing the difference of sweet and white."⁵

We must say, then, that even for the cognitive function of sensibility, the sense judgment has only a remote analogy with a true judgment, namely that of the intellect. Like the latter it goes further than the first apprehension of the object, for it contains a new cognition, that of the difference between the content of two simultaneous apprehensions. It has, therefore, a resemblance to the composite apprehension which should precede the judgment of the intellect. But it differs from it greatly, for it cannot affirm the *esse*, and this is the essence of a true judgment. There is no composition by affirmation or negation, that is to say, no application to the thing. It does not know its own conformity. The conformity is known only by the intellect and is the motive of the judgment. Thus, in *Summa theologica*, I, q. 17, a. 2, c, and ad 3, a judgment is attributed to the sense, but not such that the truth of the apprehension is known; yet this was described a little before (q. 16, a. 2) as characteristic of the judgment of the intellect. Similar doctrine is found in *De veritate*, q. 1, a. 11, and a. 9.

The sense judgment is, then, not a true judgment, not even a judgment of pure perception. The judgment of pure perception must be sought for in the intellect. Before examining it we must treat of an intermediary case, that of the singular necessary judgment.

CHAPTER IX

The Singular Necessary Judgment

1. THE ORIGIN OF THE SINGULAR NECESSARY JUDGMENT

THE FIRST JUDGMENTS, which affirm a necessary connection in a material thing, the proper object of the human mind, are by nature universal. They can have different degrees of universality according as there is question of a judgment only *per se*, or one which, moreover, is *primo*; for example, "The straight line is divisible" or "The extended is divisible." They must be universal, for they owe their origin to a reflection on an intellectual apprehension alone, and this latter is by nature abstract and hence universal. It is possible for us to discover directly the intelligibility of a singular connection, but then there is no question of a material structure, but rather of a spiritual thing.

To have a singular judgment, "This straight line is divisible," the reflection must be prolonged and directed not only to the *intellectual* apprehension, but further to the source of this latter, the corresponding phantasm. In this sense, the intellect has its knowledge of singular material things and its judgments on them not "directly" but only "by means of the senses." In truth, the universal apprehension and the universal judgment depend always on the phantasm, which must furnish the data, the "determination"; but the judgment, "So it is in reality," is accomplished in the intellect alone and by reason of intellectual data. The intellect knows this "directly." We must not confuse this first purely intellectual cognition with another which owes its origin to a reflection on the phantasm and which is accomplished by means of the senses; this would lead us into error. The singular case demands a further reflection (*ulterius*) on the phantasm, which directly knows the singular. Only through the intermediary of this sense cognition can man pronounce a singular judgment on a material nexus. This is why this cognition is "indirect"; it is an "application" of the universal knowledge to a material datum.

This prolonged reflection is very easy if it considers the phantasm which is the source of the apprehension. This fact may be the occasion of the

error we have pointed out. This is the Thomist theory, and this is the way it takes place in reality, as anyone can easily discover for himself.

In this life, man cannot think without phantasms. "The soul never understands without a phantasm." The apprehension on which the mind reflects to arrive at a universal judgment has need of a corresponding phantasm, a phantasm which already contains the nexus which will be affirmed as necessary. Whence arises the analogy which attributes to the phantasm, in respect to the intellect, the function which the sensible has in respect to the sense: "For the intellective soul phantasms are as sensibles for the sense." Whence the thesis that the first principles are seen (*inspici, aspici, intelligi*) in the phantasm; whence also it is said of the mind that "in considering these phantasms . . . the intellect judges of and co-ordinates sensible objects" (*Sum. theol.*, II-II, q. 175, a. 4). For the singular judgment this becomes an "application" to the phantasm.

Here then the reflection leading to a singular judgment should be very easy. It is the same phantasm (a) from which we have abstracted the structure leading, by means of the first reflection, to the judgment; and (b) to which our prolonged reflection "applies" the judgment. Nevertheless, St. Thomas rightly maintains that our first knowledge and our first judgments are universals; for the content of the apprehension is universal (since abstract), and it is on the apprehension that the first reflection is made. It may well be that the resulting judgment is only virtual, but it is universal.

From all this it is clear that one arrives easily at a singular *causal* judgment: "This straight line is divisible, because it is extended"; or a *rational* proposition: "This is extended and hence it is divisible."

2. THE NOETIC NATURE OF THE IMAGINATION

The reflection which penetrates to the phantasm thus gives us, by application, a singular judgment on a necessary objective structure. The importance of this is that it reveals the "nature of the act" and by that the "nature of the principle," namely, the nature of the phantasm as an act and the nature of the imagination which has the act. Evidently this will be true only on condition that the reflection is prolonged in the same way as the reflection which first leads to the universal judgment and then to the knowledge of the nature of the intellective act and the nature of the intellective faculty, on condition, therefore, that it make the phantasm itself its object.

The reason is that the theory of St. Thomas on the mode of cognition of our acts and faculties is general (see Chap. V, Sect. 4), the act is known only by reason of the object, and the faculty by reason of the act, and the "nature" of all is discovered only by the intellect. Moreover, for the series of these cognitions there is needed only one likeness, that of the "proper" object of the human mind, that of the structure of a material object. This is true for the nature of the phantasm and the imagination. We should keep in mind, however, that for these easy reflections there is no question of the metaphysical nature, but of the noetic nature.

The phantasm manifests itself as the representation of an object, as a "presentation" (Chap. I, Sect. 3); it purports to be the representation of "another," of a *res*, a singular thing, which does not depend on the phantasm, but on which the phantasm depends. Is this claim justified, and do we see that it is justified? To begin with, the intellect sees, by reflection on the phantasm, that it derives from the phantasm the "determination," or structure, of its apprehensive act. We have learned this from many passages (Chap. I, Sect. 3). In receiving this determination the intellect is at once both active and passive. The activity consists in the abstraction by the agent intellect, the passivity consists in the reception of the content or determination from the phantasm. This is why the intellect is essentially *dependent* on the species which it receives from the phantasm. This is the doctrine of St. Thomas, and it is clear to any reflective mind.

But the mind is not dependent *in everything* on the sense data. We have learned, in the same order of ideas, that the judgment on the data is pronounced by the intellect alone by reason of its sovereign intuition. That is why we are told:

The judgment does not only depend upon the reception of the species, but also on this fact, that an examination is made of what is to be judged. (*Iudicium non tantum dependet a receptione speciei sed ex hoc quod ea de quibus iudicatur examinentur. De ver., q. 12, a. 3, ad 2.*)

This is why the judgment is attributed to the activity of the mind:

Inasmuch as the soul judges of things, it is not acted upon but rather in a certain sense acts. (*Anima in quantum de rebus iudicat, non patitur a rebus sed magis quodammodo agit. De ver., q. 1, a. 10.*)

We found above, by a simple analysis, that the intuition which leads to the first necessary judgments would be exactly the same if the data had not come to us from the senses. The intuition of the necessity and of the

intelligibility of the intellectual data is independent of the circumstance that they have *de facto* come from the phantasm (Chap. VI, Sect. 5). That they do come from the phantasm is a simple fact, discovered by reflecting on the phantasm. If the judgment is affirmative, it affirms the content of the data and, in so doing, that of the phantasm. But as we know, the mind does not always, on reflecting, say, "So it is." It only says it when it discovers in the data a necessary connection; otherwise, the affirmation does not follow. Recall some of the examples we saw above (Chap. VI, Sect. 2): the case of the relation of the whole to its part, and the case of the green swan. For the first case the judgment was, "Things are as I represent them" or "as the phantasm represents them to me." The second case, however, did not lead to a judgment, because the nexus was not necessary.

And so we conclude that the act of the imagination which permits an intuition of an intelligible structure is truly an operation representing reality. The nature of the act of the imagination is therefore known by the intellect in this reflection, and by reason of the nature of the act, the nature of the faculty. The claim of the imagination (that it represents a *thing*), its reality value, is then justified *for such cases*; by its nature it is a cognoscitive faculty, attaining reality. Is it such also in other cases, when its content does not show itself as necessary and intelligible? Perhaps further research would prove this point, but the simple process which we have just studied tells us nothing about it.

We said "simple process," for the positive result is achieved after the simple noetic reflection of the mind on its act and on the phantasm whence it receives its apprehension and upon which it depends. We have this intuition of the nature of the imagination by reason of a natural reflection, prior to any philosophizing. Our judgments on the cognoscitive value of the imagination are justified, without any need of philosophy, by this intellectual intuition. Philosophy does no more than stress this intuition by means of an analysis and then formulate it by a proposition. This does not deny that such a task is very profitable, although laborious.

To cast more light on all this, it might be well to consider for a moment the other function of the senses, by way of contrast. For the senses also serve for the "utility for life" and are, as such, a part of "natural instinct." This function also supposes sense cognition, but not a cognition which leads to the intellectual knowledge or to disinterested science. In the mechanism which is directed toward the "utility for life," the phantasm is one of the wheels. The instinctive activities which follow from sense

knowledge follow of necessity; but what is sought after or avoided, what is good or bad, what is "useful" or "harmful," is not revealed by a simple reflection. To decide that question there is need of a systematic research; and thus the instinctive activities become the object of a scientific study which might become very complicated. As in the study of every external object, the nature of the instinctive acts is not discovered by a noetic reflection, and this contrast helps us to see better how, by a simple noetic reflection, we discover the nature of the act and of the faculty of the imagination.

In all this process, it must be noted that the justification of the sense faculty or of sense cognition is not anterior to the justification of the intellectual operation, but is rather a consequence of it. What is first known is the nature of the intellectual apprehension, an apprehension of a determined content; this is the starting point of a natural critique. The human mind, in its natural attitude and without philosophical preoccupation, does not admit the justification of intellectual cognition except after a critical reflection; nor does it admit the justification of the sense cognition, whence it has derived its intellectual cognition, except after a critical reflection. The important thing to remember is that we do not need to know anything about the manner of acting of the senses or about the "how" of the imagination.

The case of the singular necessary judgment which is only an application of the universal is indeed very simple. Clearly it does not affirm that this singular objective structure exists actually, here and now, but affirms only its possible existence (*ei competit esse*); for actual existence is affirmed only by a judgment of observation, of actual perception that invokes the help of the exterior senses, which supposes a reflection penetrating ever further into the origin of the data, the external senses. We shall see this in the next chapter. Notice here, however, that this further reflection makes us see that the phantasm is not only the representation of an exterior object, but of the *observation* of this object.

3. HOW INTELLECTUAL COGNITION SURPASSES SENSITIVE COGNITION

Before starting out on the subject of judgments of experience, let us note certain details. The true judgment of the intellect surpasses sensitive cognition from three points of view. First, it attributes being (*esse*) to the content of the phantasm; secondly, it knows the necessity of this content, whereas the phantasm only represents it as having a nexus in fact;

and, finally, it surpasses sense cognition in exactitude. The first two points have been sufficiently explained, but the last needs further clarification.

Intellectual cognition of extended objects, or geometry, is occupied, even in its elementary stages, with lines and surfaces, and hence with indivisibles. It treats of the absolute equality of extended things, of their absolutely exact proportions, of absolutely perfect figures, such as a straight line or the circumference of a circle. But sense cognition, which is the source of the intellectual intuition, does not have this absolute exactitude, for the sense does not know indivisibles. St. Thomas knew this very well.¹ The sense datum which we call a point or a line is really a small spot or a narrow strip. Sense cognition of proportions, of equality, and consequently of absolutely exact figures, such as a perfect circle, is excluded. This is true for the elements of geometry, but not for arithmetic; in arithmetic a small number of objects can be observed exactly and can be submitted to exact operations such as numbering, addition, and so on. Whence in the theory of St. Thomas, because its starting point is sense data, there arises the problem, how can the exact intellectual cognition, which geometry pretends to be, arise out of these inexact sense data? This is true not only for the phantasm, but also for the exterior senses. It is the problem of the "Prazisions- und Approximationsmathematik" of Felix Klein. Here we cannot indicate the solution,² but we must call attention to another problem, supposing the solution of the first.

The singular judgment which we are discussing at present is an "application" of the universal judgment to sense data, whether of the imagination or of the external senses. The question arises whether any of the prerogatives of intellectual cognition are lost by this application, namely, any of the three points by reason of which intellectual cognition surpasses the sensitive. To answer this we should note a difference in the three points.

The first prerogative was that the intellect knows *being*, whereas this is not attained by the senses; the *ita esse* is characteristic of the judgment of the intellect. Now this remains intact in the application, for the singular judgment, whether on the content of the imagination or on that of the external senses, continues to be a judgment of the intellect; we rightly affirm: "So it is." This is precisely what justifies the imagination as a cognoscitive faculty, and the same will be true of the external senses.

The second point was the grasp of the *necessity* of the nexus, which implied intelligibility and for that reason the right of affirmation. Obviously this remains intact in the application to a singular instance. We see intellectually that the singular nexus is necessary; indeed, this fact is

so clear that it could make us forget that the first cognition implied the universality of the truth. The nexus belongs to the nature absolutely considered, which has an abstract mode of being in the mind and a singular mode of being in the thing. The nature itself, however, is anterior to both modes of being.

The third point was that of *exactitude*. Here we have a double distinction. First between the data of arithmetic and geometry. Arithmetical data do not, if they are not too complicated, present a problem, for they are themselves exact. The same can be said for a certain number of geometrical data, for example, topological data. But where the problem of exactitude presents itself a further distinction must be made. In some cases exactitude remains, in others it is lost. In applying an exact geometrical truth to a datum of the senses, we do not know whether this object is exactly the same as that of the truth. Here is an example. We know that a triangle whose sides bear the ratio 3: 4: 5 is rectangular, and we know this with absolute, "infinite" exactitude. But to decide whether an existing triangle has or has not sides which are in this ratio is impossible because of the imperfection of our senses. Even if the most exact possible measure discovers no variance from this ratio, it is not certain that there is none. By its application to this singular case, the universal truth loses its absolute exactitude, and we must be content with an approximative geometry. However, we must remember that there is question of a true *approximation* whose limits can often be determined.

A very important point we must not forget is that these exact proportions (for example, a triangle which is exactly rectangular) remain *possible* in an extended thing; they are there realizable. This is unquestionable. But, by reason of the imperfection of our senses, and by reason of the natural laws which govern our observation and our practical measures, it is impossible *for us*, impossible "in principle" to decide, for example, whether a given real triangle satisfies the conditions. But from this practical impossibility, even though it is imposed "in principle," it does not follow that an exact figure, corresponding in every way to the theoretical figure, is not realizable. We know that it is absurd to suppose, for example, two extended things which in reality would not have determined or exact proportions in their dimensions. We have seen above that Neopositivism draws an erroneous conclusion from this impossibility "in principle" of exactitude in practical measuring. At least it draws this erroneous conclusion in other cases, and if it does not do so in regard to the existence of exact proportions of size, it is inconsistent with itself.

CHAPTER X

The Judgment of Perception

1. PRIOR CONDITIONS

THE SINGULAR JUDGMENT we studied in the preceding chapter was one with a necessary nexus. We have not yet studied judgments with a contingent nexus. Moreover, we have not yet seen the necessary judgment which says, "It is actually so, here and now." We have as yet only been able to affirm, "It *can* be so" (*ei competit esse*). This is why sense perception has never been even partially the motive of our affirmation. The motive was purely and simply the intellectual grasp of the necessity of a nexus, and after that, the intuition of the fact that there was a singular realization of this nexus in the phantasm; in this consists the simultaneous intellectual and imaginative cognition of an object.

For a judgment of perception these conditions are modified. In such a case, according to St. Thomas's theory, the motive is partially that the external senses perceive this; and this motive is demanded as well for judgments with a necessary nexus as for those in contingent matter. These two cases do not differ in St. Thomas's theory, for in both there is need of a prior intellectual insight. The critique of St. Thomas, even for judgments in contingent matter, that is, the judgments of pure perception, begins in the intellect. For according to St. Thomas, even the judgment which affirms a contingent nexus, "So it is in reality," presupposes a reflection which begins by the apprehension of this nexus, and discovers therein some necessity. Evidently not a necessity of the nexus itself; for then there would not be question of a contingent judgment. We have already discussed this above (Chap. IV, Sect. 4) in the light of *Summa theologiae*, I, q. 86, a. 3:

Every contingent thing has in it something necessary; for example, that Socrates runs is in itself contingent; but the relation of running to motion is necessary, for it is necessary that Socrates move if he runs. (Nihil est adeo contingens, quin in se aliquid necessarium habeat. Sicut hoc ipsum quod est

Socratem currere, in se quidem contingens est, sed habitudo cursus ad motum est necessaria; necessarium enim est Socratem moveri si currit.)

The contingent fact that Socrates runs contains a necessity, even though this necessity is not the necessity of the nexus which is affirmed. We have called it a "lateral nexus." One must note carefully the thesis of the article that *to know intellectually*, and afterwards to *affirm* this *contingent* nexus, we must see in the predicate a necessary connection, as, for example, the relationship of running to motion (perhaps other necessary connections in this predicate would be even more decisive; for example, the essential relations of movement itself, beginning with the possibility of movement arising from the nature of extended things). It is not necessary that such an intelligible connection be here *affirmed*, but it must be understood by the intellect and hence is a virtual judgment. It may be that such a connection was already the object of a preceding affirmation. To have such an intellectual view, a reflection on an intellective apprehension is necessary. This is the starting point of the judgment of perception. It is necessary because we must first see by means of the intellect that the predicate is being (*id cui competit esse*).

We have just said that the predicate should contain this necessary connection. The subject which is named in the proposition is here purely indicative, signifying "this." The proposition means "This is running." In other words, the existence of Socrates being already known, the new element which is affirmed at present is his running. If the subject, as well as the predicate, is seen at this moment for the first time (for example, I see a white ball and I say, "This round thing is white"), then the necessity of a necessary and intelligible connection would arise for the subject as well as for the predicate. This is the first prerequisite.

But there is question here of a singular instance; hence, after this first reflection on the intellectual apprehension, a second is necessary, a reflection reaching the imagination, which is the source of the apprehension. Otherwise the judgment would not be "Socrates is running," but the universal, "Whatever runs, moves." A prolonged reflection reaching the phantasm is then necessary. But even this does not yet suffice for our judgment, for it does not say, "If this subject runs, it moves," but it affirms, "Socrates is actually running, here and now." Now to arrive at this conclusion, a further reflection is necessary, a reflection on the operation of the external senses, that is, on the perception itself. This is, then, another prerequisite.

Consequently, the last motive of the affirmation, formulated in general

terms, is that the senses give testimony to it. This is not the unique motive, for the prior view of the predicate and subject as being is also a motive of affirmation. This prior view was the unique motive for the first judgment; but for this reason such a judgment remains in the sphere of essential relations, of possible existence. Hence it is necessary to leave this sphere in order to enter the domain of actual existence, which is contingent. This is why, after the first motive, we must admit another: I affirm it because I see it. We know already (Chap. IV, Sect. 4) that the senses alone "directly" know contingent things inasmuch as they are contingent; the intellect knows them only "indirectly," that is to say "through the intermediary of the senses." This is a dependence on sense data which differs essentially from that which we have met with up to now. The senses play their part in the origin of the judgments on essential relations; but this is only to furnish the intellect with the material (*materia causae*). The discovery of being, the affirmation, is a purely intellectual task; it is not accomplished through the intermediary of the senses but directly. In the origin of the judgment of perception, the senses have another function besides this first one. For without their testimony that the form of the subject and that of the predicate are actually realized in the same suppositum, the intellectual judgment cannot rightly follow. This judgment is, then, arrived at indirectly, that is to say, through the intermediary of the senses.

There is, then, a third prerequisite. The senses have to furnish the final motive for the affirmation that this real possible running is, here and now, *actual* in Socrates; or, for our other example, this real possible (the spherical form) is here *actual*, and it is conjoined here and now, *actually* and in the same subject, with another real possible (whiteness). Only the recognition of actuality (naturally singular) demands this new motive; only under that aspect is intellectual cognition indirect. But the motive is a new one and of another order.

2. THE NATURE OF THE NEW MOTIVE

How can we justify this new motive of "Because I see it," or more generally, "Because I perceive it"? The conclusion to which St. Thomas arrives is clear and without equivocation. These judgments are critically justified if certain conditions are fulfilled. He tells us in *In De Anima*, II, lect. 12, n. 375, that by nature the external sense cannot perceive without the *actual* presence of the sensible:

One cannot sense when he pleases; for he does not contain the sensibles in himself, but they must be given to him from without. (Sentire non potest aliquis cum vult; quia sensibilia non habet in se sed oportet quod adsint ei extra.)

Herein lies the difference between the imagination and the external senses. We are told in *Summa theologica*, I-II, q. 15, a. 1:

Now it is proper to sense to take cognizance of things present; for the imagination apprehends the similitude of corporeal things, even in the absence of the things of which they bear the likeness. (Est autem proprium sensus quod cognoscitivus est rerum praesentium; vis enim imaginativa est apprehensiva similitudinum corporalium, etiam rebus absentibus quarum sunt similitudines.)

By reason of its nature, sense perception justifies the judgment of the intellect which says that it is so. Thus in the *In De Anima*, III, lect. 4, n. 632:

In sensible things, when we sense something, we say that it is so. When something is seen with the phantasy (or imagination), we do not say it is so, but that so it seems or appears to us. . . . And similarly when we understand something we assert that it is so. (In rebus autem sensibilibus, cum aliquid sentimus, asserimus sic esse. Cum autem secundum phantasiam aliquid videtur, non asserimus sic esse, sed sic videri vel apparere nobis. . . . Et similiter cum aliquid intelligimus asserimus sic esse.)

The judgments here are presumed to be legitimate, both as regards propositions of perception and as regards the necessary proposition mentioned at the end. By contrast an imaginative representation at most justifies an "opinion." Clearly there is question here of an imaginative representation that does not contain any direct intelligible nexus, for example, that of a green swan. The judgment enunciated concerning a perception of the external senses is, by its nature, well founded. We have learned this already from *In Ethica*, VI, lect. 3, n. 1145:

Such certitude, that a thing cannot be otherwise, cannot be had concerning contingent things which can be otherwise. We can only have certitude concerning these when they fall under sense observation. (Huiusmodi certitudo, quod scilicet non possit aliter se habere, non potest haberi circa contingentia aliter se habere. Tunc enim solum potest de eis certitudo haberi cum cadunt sub sensu.)

Hence if the objective structure is actually perceived, then a certain judgment can follow. By reason of its nature, sense perception gives a suf-

ficient reason for certitude, sufficient because it contains something which implies intelligibility and, hence, a true intuition of a necessity; not (or at least not only) a subjective necessity, but a necessity in the *object* of the intuition. Here the object is the nature of the perception (*natura actus*) and by reason of this, also the nature of the potency, which is known by a reflection. We have already seen this in a text of *Contra gentiles*, I, 67:

For this conditional statement is necessary, "If he is seen to sit, he is sitting." (Haec enim conditionalis est necessaria, "Si videtur sedere sedet.")

This conditional proposition can be converted into a categorical proposition:

That which is seen to sit, necessarily is sitting. (Quod videtur sedere, necesse est sedere.)

This must be understood of the *dictum*, or "in the composite sense," and not of reality (*in re*) nor "in the divided sense." That is to say, the necessary connection is not situated between the subject and his "sitting," but between the being seen (*videri*) and the actual sitting of the subject. It is, "as some express it, a necessity of the consequence and not of the consequent."¹

In this way, then, a necessary connection in the *object* of *this* affirmation is recognized; this object is not "the subject who is seated," but it is the relation of the "seeing" to the "thing seen"; there cannot be a veritable "seeing" if there is not a "thing seen." By nature, perception is connected necessarily with the actuality of the objective structure which is sensitively perceived; the senses transmit this to the intellect, which registers the perceived thing and after reflection affirms it.

Here, then, is the noetic nature of sensitive perception, the nature of the act and of the faculty. Perception is necessarily joined to the actuality of the structure perceived. This necessity, like every other, is intelligible, and St. Thomas is convinced that we see this necessity. Such then is the nature of the new motive. Let us see how St. Thomas arrived at his doctrine.

3. THE METHOD OF JUSTIFICATION

Let us recall first of all certain conditions required by St. Thomas and which are seen to be fulfilled. The judgment of the intellect on a singular

sense datum is always an application of a universal truth to a singular case. To make this application possible it is necessary that the one who makes it know both the universal and the singular. Now this is verified in man, for the senses know the singular and the intellect knows the universal. In both instances it is the *man* who knows. Thus in *De veritate*, q. 2, a. 6, ad 3, we read:

Man knows the singular by imagination and sense, and hence he can apply the universal cognition, which is in the intellect, to the particular thing; for properly speaking it is neither the sense nor the intellect which knows but the man who knows by both. (Homo cognoscit singulari per imaginationem et sensum, et ideo potest applicare universalem cognitionem, quae est in intellectu ad particulare; non enim proprie loquendo, sensus aut intellectus cognoscit, sed homo per utrumque.)

That is why, as we have seen, man can experience a radical unity (*continuatio*) of sense and intellect, as we are told in *De veritate*, q. 10, a. 5:

Per accidens, the mind reaches to singulars, inasmuch as it is connected with the sense powers which are concerned with singulars.² (Mens per accidens singularibus se immiscet, in quantum continuatur viribus sensitivis, quae circa particularia versantur.)

This application supposes a prior intellectual grasping of a necessary connection in the object. If the singular judgment itself is necessary, this will be the nexus between the subject and the predicate. If the singular judgment is contingent, it will be a "lateral nexus," a necessary connection in the predicate (or in both predicate and subject). By reason of this necessity the predicate (or also the subject) is already known as "being." But now to enunciate the judgment about an actual fact, another motive is needed; this is the one we are explaining. It is the grasp of the necessary connection between perception and the actuality of the perceived. There is, then, a double necessity.

It must, therefore, be possible to find for this case—as we have been able to find for the case of the intellect—the nature of the act and of the potency, that is, the noetic nature of perception and of the faculty of perception. We know that this is done by the intellect alone, which, in reflecting, fixes its attention on this nature as its object. What we have just said implies that man does this by reflecting on his own conscious life; and that he does it only in those cases in which he has already discovered a necessary intelligible nexus in a perceived object. Only then will he be

able to discover this second necessity, that which joins perception to the actuality of this perceived intelligible thing. Only then does sense cognition subserve directly the intellective knowledge of pure science, and not, as instinct does, the "utility for life."

How does this reflection take place? One may be tempted to look for the answer in a direction taken by many moderns, in an application of causality under its multiple aspects. We could demonstrate the correspondence and the necessary conformity between perception and the object; but then we would have to say that the judgment of perception is not justified except after such a demonstration. In St. Thomas's position, such as we know it at present, we believe that the foundation of such a demonstration would be more solid than in other commonly held positions. For in St. Thomas's position it has already been established that these perceived data are truly beings, since they contain a "necessary relation." They are therefore intelligible. We already have an intellectual grasp of their nature as being, so there remains only to demonstrate that these beings are actually realized in perception. In other more modern positions this intellective grasp is not demanded, nor is it verified in advance. This is why the demonstration would have a more solid basis in the Thomist position. Let us compare the position of St. Thomas with that, for example, of Kant or of other moderns. By reason of an insufficient analysis of the difficulties of the continuum, Kant had arrived at the erroneous conclusion that the extended could not really exist. Whence arises the conflict with the principle of intelligibility (as we have seen in Chap. VII, Sect. 7); for it is this principle which upholds the extended as being, before we know its actuality. In Kant's position, an exact solution of the problem of the experience which pretends to attain the actuality of the extended is rendered impossible. A Thomist, in his examination of this problem, is in a much better position, for he has been able to resolve completely the apparent antinomies of the continuum, and thus save the extended as being; and he can make use of this in his research. Besides, in St. Thomas, as we have seen (Chapter VII, Section 7), the principle of causality flows from the double principle of intelligibility. In truth, the knowledge of these principles is acquired by a reflection on judgments which affirm a necessary nexus of a material object. For the apprehension of this object the intellect depends on sense data; but only inasmuch as the senses have to furnish the matter (*materia causae*). We have established that, in St. Thomas's doctrine, both the first judgments about its proper object and the principle of intelligibility suppose abso-

lutely nothing concerning the noetic value of the senses (see Chap. VI, Sect. 5 and Chap. VII, Sect. 5).

This point of view, therefore, seems to guarantee success to one who would seek the justification of the judgment of perception with the help of the principle of causality. The objective would be the demonstration of the necessary connection between actual perception and the actual existence of what is perceived (where what is perceived contains necessary connections guaranteeing its possibility, or its nature as "being"). One could see a confirmation of this opinion in the fact that St. Thomas, in his theory of sense cognition, often uses causality, both efficient and final, and its principles.³ Nevertheless, one must not overestimate this last fact; for this could lead to erroneous conclusions. The fact can be explained in another way. St. Thomas uses causality in treating of intellectual cognition, and yet the *justification* of this latter is established before the discovery of these principles of causality and leads to that discovery. How then are these passages to be explained; do they contain a vicious circle? The explanation is very simple. There is question, in these texts, of a deductive explanation, metaphysical and psychological, of knowledge, and not of a noetic justification of knowledge; of an explanation which clarifies this cognition, its origin and its structure; an explanation which, for this purpose, *begins* with the nature of the *faculty*, in order to deduce from it the nature of the *act*. This explanation follows a path which is the inverse of the path of discovery; and can come only after the justified conviction of the value of cognition. This conviction is already there, it is already justified, it is the result of a noetic reflection, prior to science. This conviction is justified and is proper to man in his natural, prescientific attitude. Hence we can say that these texts do not support the opinion that St. Thomas sought the answer to our problem in that direction.

And yet this opinion is not excluded by this explanation; at least not when it is given certain modifications and limited to the problem of the justification of the judgments of perception. For even in his prescientific attitude, which is naturally critical, man makes use of the principles of intelligibility, not indeed explicitly and by using technical syllogisms, but rather as virtual judgments. He is critically convinced of the "being" of what is intelligible. And thus, led by these principles, he could convince himself by a prolonged experience that perception—as opposed to the imagination which he can set in operation at will—corresponds faithfully, by nature, to an actual reality. That the contents of perception are beings is already certain by reason of their intelligibility. Besides, he knows that

perception presents itself, in opposition to the imagination, as the perception of something actual. That these contents, if they are perceived in this present object, are realized would then find justification in the principle of sufficient reason.

We do not wish to deny that such an explanation could be founded on the Thomist data which we have seen thus far, but we do not believe that this is the road St. Thomas takes. His method seems to take a different path. Perception is an operation of the soul, an act of the perceptive faculty of the soul. Now, all these powers without exception are known by a reflection upon their acts, and the acts are known by their presence alone. They belong to the class of things "which are in the soul." Consequently, if the nature of the act is to be known, a reflection of the intellect is needed; and the possibility of this operation is given by the fact that it is *man* who perceives and who thinks. The reflection which leads to the first intellectual insights unfolds very easily, without reasoning, without any application of the principles of intelligibility. Could this not be true also of the case of the reflection on the nature of the act of perception, and, in turn, on the nature of the perceptive faculties?

St. Thomas's ordinary manner of speaking seems to indicate such a process. Some have even attributed to him a "naïve" realism. He is certainly not naïve, for he attributes to the prescientific man, and much more to the man who begins to construct the sciences, first judgments which are possible only after a critical grasp of a necessary connection. The conditions which he supposes for judgments on singular and contingent cases are more severe than those of the generality of philosophers, since even for these cases he requires the grasp of a necessary connection. Without this grasp there is no intellectual cognition. That is the reason why he requires the fulfillment of this condition even for the judgment of pure perception. He does not do it to give to this simple judgment, "Socrates is running," a kind of scientific value; no, he demands it because without this grasp of a necessary connection the judgment would not be an operation of the intellect; for such is the condition he sets down in treating of the question whether the *intellect* can, generally speaking, know contingent facts. In reflecting on the origin of a judgment of perception, he discovers another necessity, which he has formulated in these words, "What is seen to be seated, necessarily is seated." This necessity, of course, is to be understood *in sensu composito*, that is to say, as joining the actual reality of the object to the actual vision of it. This expression of the noetic nature of the external sense is in every way parallel to the one we have

found for the intellect, namely, "The intelligible is being." The two formulas are taken from the functioning of the potencies. If then St. Thomas, despite all these demanding conditions, can, by his manner of speech, give the impression of being a naïve realist, it must be supposed that the reflection which verifies all these conditions takes place with as much ease as that which leads to the first necessary principles; with such ease that it escapes the analysis of the philosophers who accuse him of naïve realism. The truth is that they simply have not realized the full force of the critical demands of Thomism. Without doubt, then, we can expect a reflection which is not as difficult as that which has as its purpose to discover, for example, the essence of the soul, for which (as we have seen in Chap. V, Sect. 4) such "a diligent and subtle inquiry is needed" that "many have erred concerning the nature of the soul."

We read in *In De Anima*, I, lect. 8, n. 111, that "the powers of the soul are known by reason of the acts and the acts by reason of the objects"; and this was said of all the powers of the soul as is clear from *Quaestio Disputata De Anima*, a. 16, ad 8: "this fact is common to *all* the potencies of the soul, that the acts are known by reason of their objects and the potencies by reason of their acts." If there is question of the powers of the soul, we cannot discover the nature of the object and of the act and of the power except by the presence of the act in the soul. If, besides, there is question of a cognoscitive power, there must be a facile reflection which attains the noetic nature of the act; for this nature is "to know this object."

The simplest reflection is that which restricts itself to the intellect itself; for it is the intellect alone which can know the nature of the act. That is why the critical knowledge of the act and, consequently, of the power, begins with the intellectual apprehension, and thence extends itself further to the sensitive powers, even though the operations of the sense powers have preceded the intellective operations. To discover the nature of the sensitive acts, one must institute a further reflection which depends on the first. There is one fact which simplifies matters greatly, the fact that the same man knows both sensitively and intellectually. This makes it possible for these two different powers to "apprehend," both sensitively and intellectually, the same object, namely, the structure of a material object, the proportionate object of the human mind. This observation leads to the important conclusion that not all sense knowledge reveals its nature and its noetic value in such a simple way. For there are amid these sense cognitions a whole group which have for their purpose the "utility for life"; another group is the source of theoretical knowledge

(Chap. VIII, Sect. 2). We cannot know the nature of the first type of sense acts, which belong to instinct, except by scientific methods which apply to exterior objects. Speaking in general, this "reflection" will be far from easy. Moreover, it can well be that these acts contain many subjective elements which contribute to the agreeableness and the beauty which form part of the usefulness for life. We should not begin with such acts. Only the acts of the second type will be known critically by a simple noetic reflection. They should satisfy an exigency imposed by St. Thomas's starting point; they should furnish the subject matter of an intellectual view of a necessary nexus, which makes its object known as "being."

The reflection should extend to the knowledge of the external senses. To begin with, let us examine two general discoveries. The first is that the phantasm is not only a representation of an object, but also and especially a *representation of the perception of an existing object* by the external senses. We already know from the content of a phantasm that it corresponds to a possible reality, provided that content contains a necessary relation; there is possible a real being such as is represented by this phantasm. Now we see that there is a possible perception of the external senses attaining an existing object and representing that object as it is.

This is how St. Thomas describes this result. Strictly speaking, the intellect immediately draws its apprehension not only from the imagination but also from the other internal senses. In *De veritate*, q. 18, a. 8, we are told that the intellect "immediately receives from such powers, and turns to them whenever it is in act." To these powers belong not only the imagination but also the common sense. St. Thomas enumerates the powers thus:

the imagination, the estimative faculty, the memory and the common sense. (vis imaginativa et aestimativa et memorativa et sensus communis.)

Moreover, a close connection exists between the imagination and the common sense; so much so that the image of the phantasy is called a "passion" of the common sense (*In De Memoria et Reminiscentia*, lect. 2, n. 319). And still the two faculties are not identified; the second is the "root" of the first just as it is the root of the external senses (*Ibid.*, n. 322).⁴

Therefore, the common sense can be the internal sense which is a source for the intellect and, in fact, as the root of the imagination, is always the source for the intellect. Now the object of the common sense is

not only the sensible, but also and principally, the perception of this sensible. Concerning the memory, which does not differ from the imagination except by the knowledge of the past as such, we are told expressly (*Sum. theol.*, I, q. 79, a. 6, ad 2):

Wherefore, at the same time an animal remembers to have sensed before in the past, and to have sensed some past sensible thing. (Unde simul animal memoratur se prius sensisse in praeterito, et se sensisse quoddam praeteritum sensibile.)

The word "wherefore" refers to the argument which preceded, which spoke of the "object which is known" and the "act of knowledge":

which two are found together in the sensitive part, which apprehends something from the fact of its being affected by a present sensible. (quae quidem duo simul coniunguntur in parte sensitiva, quae est apprehensiva alicuius per hoc quod immutatur a praesenti sensibili.)

The first general result of this reflection is, then, that we know the phantasm as *representing the perception itself*. And we know the content of the phantasm, hence also the content of the perception—but always on condition that it contains an intelligible structure—as being, as a really possible object attained by perception as it actually is. Once again the object reveals to us the nature of the act: a perception is possible which knows the object as it is.

From this point of view, there is, then, a perfect conformity between the phantasm and the perception. That is why exterior observation can come to the aid of the imagination, if this latter is not sufficiently able to represent an object. St. Thomas himself speaks of cases where the imagination cannot sufficiently present an objective structure to the intellect. And among these contents there are some which manifest themselves as necessary, and hence intelligible, and hence real, precisely as do those whose intelligibility we have discovered in the imagination alone. With the same right and with the same clarity we affirm these objects as beings, by reason of the intelligibility of some essential relation. The reflection which now penetrates to the external senses makes these external senses known to us as faculties which attain reality as it is. In a moment we shall analyze this reflection in concrete cases and we shall see that, from this point of view, there is a perfect conformity between the imagination and the external senses.

But this reflection reveals also, and this is the second general discovery, a great difference between the pure phantasm and perception. The phantasm does not present its object as actual, whereas the external senses claim a knowledge of the *actuality* of this object which contains an intelligible nexus.

Is this claim justified? Is the object of perception, with its intelligible and hence possible content, actually present? A general answer should be very easy, for the actuality of the object is presumed by almost all philosophers, with the exception only of the solipsists. The difficulties they have are not in regard to the actuality of an object, but rather in regard to its essence, its quiddity. And this problem is resolved in advance for St. Thomas; the object has already been recognized as real precisely by reason of its quiddity, its essential relations, but recognized only as possible. We see again that St. Thomas's position is the inverse of that of many of the moderns. There only remains for him to find out whether we have the right to affirm by a judgment the claim of the senses that precisely *such a quiddity* is realized in *this* object which they present as actual.

Daily experience teaches us this difference between the imagination and the external sense. One might be tempted to believe that St. Thomas sees in this a sufficient reason to justify the judgment that declares as existent the object of a perception having *this* intelligible content. Especially since this experience also teaches us that our intellective apprehensions *depend* on the object, through the intermediary of the phantasm, and this latter in turn through the intermediary of the exterior senses. It is the sense data which give the content or determination to the concept. The imagination depends on perception, and through it on the object, only for its first act. Afterwards, we can put it into operation, within certain limits, as we please; on condition, however, that we have had a perception, for one born blind cannot imagine colors. But we cannot perceive arbitrarily. The acts of the external senses remain always dependent on the presence of an actual object, for they can be activated only by their object. And this supposes—once again causality plays its role—the actuality of the object.

We do not want to deny that these facts can lead to a conviction which is practically certain; certainly we do not deny that they can have a preparatory influence. But there are difficulties. Above all, there is always the difficulty we have mentioned, that this reasoning does not establish whether the actual object which causes the perception and representation is presenting itself, or something else. Again we do not deny that this difficulty can be solved, but its solution seems to demand considerations

quite different from the simple reflection which we are now considering. We do not believe that St. Thomas takes this path. He finds, we believe, the decisive factor in an element of our perception which can be discovered only by reflection on concrete living instances of perceptions. In examining the result of this reflection, we can disengage this element.

4. DETAILS OF THE JUSTIFICATION

To begin with, let us see how, according to the description of St. Thomas, a necessary truth can be grasped with the aid of an actual perception. In the example he gives, and in other analogous examples, we shall be able to discover this new factor. We read this example in a passage already seen (Chapter II, Section 5), a passage which analyzes a concrete, determined case, where reflection leads to an intellectual intuition and where perception plays an essential role. The process which he describes takes in the whole reflection and leads to a view of the twofold necessity which we mentioned. The first necessity is that of the structure of a material object (a geometric figure, for example) which is grasped in the data of a perception. The second necessity is that of the relationship of this object, precisely as an *actual object*, with perception, and consequently with the senses. These are the two necessities which were demanded for the judgment concerning a contingent fact (Socrates' running), namely, the connection between running and motion, and the connection between vision and the actuality of what is seen ("What is seen to be seated, necessarily is seated").

There is question in this passage (*In Metaphysicam*, IX, lect. 10, nn. 1888-94) of the actual *execution* of a simple construction in a geometrical figure (the drawing or the "actuation" of an auxiliary straight line) and the grasping, by a perceptive act of the senses, of the result which is recognized by the intellect as necessary. Here we have to do with a "thing to be done" (*factibile*) which can only be constructed in an actual object. It is done for the purpose of passing from one understanding to another, and in this process "vision" plays an essential role. Let us quote some of the passages and call attention to a conclusion of Aristotle and of St. Thomas:

Geometers discover what they seek by dividing lines and surfaces. For division reduces to act what was in potency. (Geometrae enim inveniunt quod quaerunt dividendo lineas et superficies. Divisio autem reducit in actum quod erat in potentia.)

In the discovery of the truth which they are looking for, perception plays a role:

It becomes immediately clear *to one who sees* the disposition of the figure. (Statim manifestum fit *videnti* dispositionem figuræ.)

Again:

And *for one who sees* this disposition and who knows the principles of geometry it is immediately clear [namely, that every inscribed angle of a semi-circle is a right angle]. (Et hanc dispositionem *videnti*, statim manifestum est scienti principia geometriæ.)

The word "clear" refers to the intellectual intuition, the words "to one who sees" refer to the perception from which the intellectual intuition immediately arises. Hence is deduced a general theory in connection with this construction (*facere*):

Wherefore it is by constructing something that we come to our knowledge, as is clear from the above descriptions.⁵ (Unde facientes aliquid actu cognoscunt, sicut patet in prædictis descriptionibus.)

The simple example given from geometry shows clearly how sense perception has an essential function in the process which leads to an intuition of a necessary truth.⁶ The whole process is composed of necessary phases and all of its parts, even the perceptions, are accompanied by an intellectual intuition. The perception is twofold: that which directs the actual construction (the *facere*), and that which intuits the result in the actuated matter. The whole operation is accomplished with a theoretical end in view, but this does not prevent us from making an application to a concrete, singular, and actual case which is our starting point. By reason of our prolonged reflection we shall not only discover the structure to be an objective truth, but moreover that this content finds here a concrete, singular realization and is an actually existing case. Our reflection uncovers a new element, namely, our external *action* which changes the object, which "actualizes" a potency. Hence the object cannot be merely something which causes in us, by means of our senses, a representation of an intelligible which would be unlike the external cause. No, the object presents itself *as it is*, since it undergoes an operation *which only an object like to that of the representation can undergo*. It seems then that we have put our finger on the element hitherto missing: it is the "knowledge

by construction" (*facientes cognoscunt*). We shall examine this element more closely in the following section. For the present, let us consider a whole series of analogous processes.

We frequently meet this "constructing," this "actual operation" (*facere*), even in the purely speculative sciences which are listed among the "liberal arts." They are speculative sciences, but of such a character that they regard an *opus*, notably an exterior work, that is to say, something to be made (in contrast with something to be done).⁷ This exterior *opus* is an object of perception. Thus we read in *Summa theologica*, II-II, q. 47, a. 2, ad 3:

Every application of right reason to the work of production belongs to art . . . the speculative reason makes things such as syllogisms, propositions and the like . . . and so we find such a thing as a speculative art. (*Omnis applicatio rationis rectae ad aliquid factibile pertinet ad artem . . . ratio speculativa quaedam facit, puta syllogismum, propositionem, et alia huiusmodi . . . et ideo invenitur aliqua ars speculativa.*)

The enumeration given here contains only logical constructions. The syllogism sometimes, and the proposition always, signify an exterior *opus*, a formula. But the enumeration of *Summa theologica*, I-II, q. 57, a. 3, ad 3, is more complete:

Even in speculative matters there is something by way of a work; for example, the making of a syllogism or of a fitting speech, or the work of counting or measuring. (*Etiam in ipsis speculabilibus est aliquid per modum cuiusdam operis, puta constructio syllogismi aut orationis congruae, aut opus numerandi vel mensurandi.*)

In the commentary *In Boethium De Trinitate*, q. 5, a. 1, ad 3, the art of music is added:

Hence, among other sciences these [logic and mathematics] are called arts, because they have not only cognition but also a work, a work immediately of the reason, such as to form a construction, a syllogism or a speech, to number, to measure, to formulate melodies, and to compute the course of the stars. (*Ideo haec [logica et mathematica] inter ceteras scientias artes dicuntur, quia non solum habent cognitionem, sed opus aliquod, quod est immediate ipsius rationis, ut constructionem, syllogismum et orationem formare, numerare, mensurare, melodias formare, cursum siderum computare.*)

These works proceed immediately from reason; and that is why they are speculative sciences. Also for this reason the construction does not

cause progress in the science (except, of course, the science of music, the "melody"). The computing of the course of the stars obviously causes nothing in the stars, but it is a calculation, a work which leads to knowledge. In these cases it is easy to discover the work of the intellect and of perception, or of perception accompanied by an intellectual intuition.

To begin with, let us take the "work of numbering" which is found in every method of calculation, beginning with calculation with the help of pebbles ("calculation" in the strict sense of the word), or of the abacus of the ancients, through the symbolic operations of algebra, up to the operations with the aid of the concretized abstractions of tensorial calculus. One who is occupied with calculation is continually performing operations with exterior objects, whether they be pebbles or integers or other symbols. The simple counting of a multitude is already a putting into bi-univocal relation (one-to-one correspondence) the exterior objects which compose the multitude with the series of symbols which man has constructed for the natural numbers. The execution of a simple calculation already teaches us that the man who performs these operations manipulates concrete symbols, concrete things, *visible* and *tangible* things. He continually performs actual manipulations and makes continuous use of his senses to direct his actions, to accomplish his task and observe its result. And during the process his affirmation of the results has as a partial motive the fact that he sees them with his eyes. But every one of the phases of this process is simultaneously accompanied by intellectual intuitions, for the process leads to necessary results. All these results, the intermediary as well as the final, are necessary truths. And even before beginning the work, we already know, if we have ever done anything like it before, that we have before us an "intelligible matter," realized in a concrete, visible and tractable object.

If there is question of a theoretical calculation, the affirmation, "So it is," always has the meaning, "This is a mathematical truth," and we are affirming an essential relation just as in the most simple cases (where a consideration of the phantasm suffices). On the other hand, it can have a further meaning, and in a calculation of daily life it is this meaning which is predominant; it can mean "This is actually so," "There are here before me twelve dollars." In the theoretical case, the judgment has the same justification as we saw in the beginning. The justification is based on intuition of a necessary connection in the intellectual apprehension, abstracted from the sense data and presented now with the aid of the external sense. But in the practical case, the truth of which is equally certain,

there must be a foundation which at the same time justifies the claim of perception concerning the actuality of its object and especially the actuality of this determined content. This foundation should be known during the whole operation for it is the justification of a virtual judgment on that claim. A philosophical analysis, however, and not a reasoning process, should be able to discover this foundation, and transform this virtual judgment into an actual judgment. This latter the mind could then express by a formula similar to St. Thomas's "What is seen to be seated, necessarily is seated." Eliminating any specific element, in the case of the pure act of intellection, we expressed this thesis universally in the function of its act: "What is understood is a being" (that is, *ei competit esse*); here we arrive at an analogous formula: "Whatever is understood and is seen is an actual being." A further analysis searching out the decisive element in this whole process would find it to be the "knowledge by construction" (*facientes cognoscunt*). This we shall see at some length in the following section. We have first, however, to study other aspects of the process.

In practice, then, we perform all calculation in the light of the intellectual intuition of the double necessity. And according to the general thesis of St. Thomas this is done in concrete, specific cases, where we learn, through the knowledge of an object which can be actually manipulated, the nature of the act and, in this latter, the nature of the faculty. We even formulate the knowledge of the nature of the faculty in terms of the nature of the act, that is to say, by means of the functioning of the faculty. This supposes we are dealing with cases which fulfil the conditions necessary for the knowledge of the nature of the act. These intuitions are not explicitly formulated during the calculation, but they are present there and have their function and influence on the calculation. The execution of the calculation is always accompanied (1) by the intuition that the intelligible, the necessary, is being; and (2) by the intuition that our operations which depend also and essentially upon the senses lead naturally to a necessary result actualized here and now. We have called attention to this from the first chapter.

This proves that the man who works without any philosophic pretensions, and often even without any scientific pretensions, has a clear intuition of these truths, so clear that it justifies his judgment by a true critique. A calculation is a type of critical operation. One can experience the presence of these two intuitions by an experiment concerning the mistakes we make, for example, in arithmetical calculations. Suppose we want to

know the sum of seven and five. We take a group of seven pebbles and add to it successively five others, counting the while, eight, nine, and so on, until we have exhausted the group of five (that is, we establish the correspondence mentioned above). We then have a sum of twelve. This is almost a mechanical operation. In reflecting on this process we can find all the details we mentioned; we need the sensible perception, and it is accompanied, as is the whole process, by the intuition of the double necessity.⁸ But here is where our experiment enters in. We make mistakes even in such an elementary calculation. Yesterday we were tired, our attention was distracted and we wrote as the result of our calculation, eleven. Today we exercise control, and working with care we find, as the sum, twelve. Now suppose we try to explain the difference in our results by saying that yesterday it *was* eleven and today it *is* twelve, just as yesterday it was raining and today the sun shines. Prior to, and even after, all philosophizing, we reject this explanation as absurd. This is a certain sign that we know that there is question here of a *necessary structure* and not, as in the case of the weather, of a contingent fact; it is the intuition of the first of the two necessities. The intuition of the second is there also. Let us say, as another explanation of the difference in results, that the method of counting (with its external and sensible operation, and because of it) sometimes leads *naturally* and not merely accidentally to one result and sometimes to another, even in necessary matter; just as when we remove a handful of marbles from a sack sometimes we shall have eleven and sometimes twelve. We immediately reject such an explanation as absurd. This is a sign that we have an intuition of the second necessity also. And these two intuitions are not a subjective restriction, or at least they are not only such, but are intuitions of objective necessities. And thus we have the true explanation: there is question here of a necessary matter, both as regards the object, and as regards the method. This latter is in itself, by nature, infallible, but our human skill may be defective in applying it. That is why, in repeating the operation, we can discover the error as such and say that yesterday we made a mistake but not today.

Our pre-philosophical knowledge is more extensive yet, for we know the "why" of these intuitions, even though we have not analyzed it. And analysis teaches us that the reason is the possibility of a formal abstraction. The prescientific man knows this, but without being able to express it. He knows that the value of the method and of the result does not depend, for example, on the color or shape of the pebbles, on the color of

the ink he uses to write down the symbols with which he performs the operations. These are only accidentals which are also perceived but which have no importance. He sees all this, for if we ask him, he will affirm it as something he knew, as something so clear to him that there was no need of mentioning it; and he will have his opinion of the intelligence of his questioner, as of the authors of the "explanations" we rejected above! Aristotelian abstraction—and mathematical objects are *par excellence* abstractions—explains the presence of the ever-decisive intellectual intuition.

There are, then, sense perceptions (accompanied by an intellectual intuition) in which we can grasp the nature of the act and the nature of the faculty. Reflection on the functioning of the intellect alone leads to the formula: "The intelligible is being," and its meaning is, "What is understood is being, that is, it can exist." Now the reflection which attains actual perception leads to St. Thomas's formula: "Whatever is seen seated, necessarily is seated," or more universally, "Whatever is understood and seen or sensed, is an actual being." But in both cases an intuition of a necessity in a concrete specific case enables us to enunciate these principles of knowledge. In both cases we say, but only when this intuition is present: "I not only so represent it to myself, but it is so in reality." In the two cases, if this intuition is lacking, the result will be: "Perhaps it is only subjective." But then, in the cases which lead to a judgment of reality, the value of sense perception and, hence, through it, of the exterior senses, is established. It belongs to the philosopher to find the determining element by an analysis of the facts.

Let us consider some further examples in the same category. St. Thomas also enumerates the structures of logic among the exterior *opera* which are the work of the speculative reason: the construction of a syllogism (the verbal formula and the operation with this formula), or of a proposition, or, in general, of anything said. The operations that we perform with these symbols, whether verbal symbols or more abstract "transcendent" symbols, lead to results which are laws of logic. This method implies sense perceptions just as the arithmetical or algebraic operations do.

In the logic of Aristotle, the execution of these exterior operations is only a particular and secondary method, but in modern logic this procedure has been enormously developed. The classical method, however, can be developed, as we shall prove in another book. The rules of operation of this science are typical examples of what we have just seen, namely,

of a method which manipulates concrete symbols which invoke as an essential element sense perception, the data of which are not only the matter, but also a motive, for the affirmation of the results. Logistics has not always, in all authors, chosen as starting points self-evident principles. Hence, in applying its rules, it has sometimes arrived at erroneous conclusions; not in consequence of a mistake in application, but because of the rules which are applied. It is precisely the necessity of the method and, hence, of the application of the rules—a necessity which supposes the intuition of the value of perception—which causes the fact that always and with everyone who repeats the same calculation the erroneous starting point necessitates the absurd result. These errors of logistics are a confirmation of all we have just developed.⁹ Hence we must say again, “by constructing they come to know” (*facientes cognoscunt*).

The third Thomist type of constructions (*factibilia*) which play a role in the speculative sciences arises from geometry; it is the work of measuring. We have already seen an example. In truth, it was not directly a measuring but pertained rather to the topological part of geometry. Practical mensuration is an *opus* of the applications of this speculative science. The simplest operation, for example, the application of a ruler to an object to be measured and the reading off of the result, already forms a process which contains all the elements of the preceding analysis, including the acts of sense perception, reflections on the sense perception, and formal abstraction. But it must be noted that in this application the *exactitude* of the speculative science is lost, as we explained above (Chap. IX, Sect. 3).

Does this value of sense perception, guaranteed by intellectual intuition, extend yet further, does it take in other objects? A detailed research here would take us too far afield. We shall mention a few cases which belong to this category and some which certainly do not belong to it.

We said above (Chap. VII, Sect. 7) that the necessary relation genus-species, as that of “movement-running,” is found also among the qualities, as, for instance, the relation “color-green.” In our *Cosmologia* and elsewhere we have established that the criterion of intelligibility is perfectly applicable to the material qualities which can be more or less intense. We have, however, an intuition only of the generic nature; but this intuition proves the being of these qualities and it is the task of a more detailed observation to find more specific details. We have been able to make wide use of this Thomist criterion in the critical construction of cos-

mology. Besides, even in this matter, St. Thomas knew a "work of measuring"; he gave its conditions and the fundamental principle of the methods. In this matter one meets many diverse types of the "construction" (*facere*).¹⁰

What does not enter into this category is the group of sense cognitions which serve only for the "utility for life," which do not lead, by way of noetic reflection, to the knowledge of disinterested science; hence, it is a knowledge which springs from instinct, even "blind" instinct. Without doubt, even here we meet with perceptions which belong *also* to the first category and which are, in consequence, known as true by a simple noetic reflection. But there are others where the value of the sense judgment can be demonstrated only by a method which studies instinctive activity just as it studies the other activities of nature. Here, sensations can be purely subjective impressions, responses to exterior stimuli, impressions which do not contribute to intellectual cognition, but to pure utility for life and also to the pleasures of life. But then, of themselves, they are not subject to a simple noetic reflection. This could have been foreseen in the Thomist theory. If they are encountered, they cannot be in any way an objection against the theory.

All that we have seen, even the knowledge of the nature of sense perception and of the sense faculties leading to intellectual intuitions, suppose only one intellectual reflection, a reflection of such a nature that man in his prescientific attitude can make it. Our exposition shows how simple this reflection is. The analysis of the reflection may be difficult, but its actualization is not. As long as these intuitions are not formulated, they do not suppose even the beginning of scientific research into the cognitive faculties, and yet they are present as veritable intellectual intuitions, virtual judgments which critically justify *these* perceptions, and hence which justify the judgments on the objective structures or dispositions which have these perceptions as one of their motives. This is the simple Thomist reflection on the nature of the act, which is followed by the judgment. The analysis of St. Thomas which we have endeavored to reconstruct does not create these intuitions, it only uncovers them, and thus it is the beginning of the philosophical critique of the sense faculties. This critique can then be developed, even with the aid of modern scientific methods. The theory is quite open to this specialization, but the results already obtained are completely independent of this development and of this further specialization.

5. "BY CONSTRUCTING THEY COME TO KNOW"
(Facientes cognoscunt)

All these concrete cases confirm what St. Thomas's exposition has taught us. For the cognition of essential relations, mathematical truths, and logical relations, sense perception furnishes data which reveal themselves to the intellect as intelligible and hence as beings. A further reflection then discovers, for the imagination, for perception, and for the perceptive faculties, that the nature of these acts and these perceptive faculties is such that they represent necessary structures just as they exist. This first point has been sufficiently gone into above, before our exposition of concrete cases, and so we shall not return to it. We shall only call attention to one conclusion. The philosophy of the eighteenth century, as well as that of the empiricists, had the conviction, which was laid down as an axiom, that sense experience could not lead to necessary truths. This was Kant's starting point. The preceding analysis of different elementary cases clearly establishes that this starting point is an error; there is a sense experience which leads directly to an intellectual intuition of necessary objective structures. And the explanation of the possibility of this fact manifests itself immediately by a simple observation. This possibility has its foundation in our power of formal abstraction, the old Aristotelian abstraction.

There remains for our consideration the second point indicated above, the claim of perception that the object which it transmits to the intellect through the phantasm and the essential relations of which the intellect sees, is *actually* present; and that this actual object presents itself, and *not another intelligible object*. We know that St. Thomas accepts this as a position already acquired and necessary. We have seen in examining concrete cases that man, in performing the described operations, has the same conviction, and considers it as critically justified. We have already touched upon the element which seems to be decisive, and we have expressed it by the Aristotelian formula, "By constructing they come to know" (*facientes cognoscunt*). It remains for us to see whether the theory of St. Thomas truly sees here the decisive element, and whether analysis can discover the justifying reason for this position.

St. Thomas uses the expression, "By constructing they come to know" (*facientes cognoscunt*) at the end of the passage where he discovers and explains the origin of the intellectual intuition of a geometric truth in a structure of a geometric figure which had been actuated by the seeker. In

what preceded it was especially this disposition or structure *as actuated* that was emphasized rather than the fact that it was *produced* by the man; it is all the more remarkable, therefore, that at the end St. Thomas insists so much, as Aristotle himself does, on this active construction.

The analogous examples of arithmetic and logic, which lead to intellectual intuitions in the same way, are called "liberal arts" because they have an *opus* while yet being purely speculative,¹¹ and this *opus*, this active construction, reveals itself to reflection as an essential phase of the process leading to the intuition. This construction causes the actual, which alone is intelligible; but it does more, and this "more" is what merits our attention.

To my knowledge, the formula, "By constructing they come to know" (*facientes cognoscunt*) is found only in the passage cited from the *Metaphysics*, and nowhere else. But St. Thomas has a detailed theory which has this truth as its foundation. He deduces this theory from the activity of the artisan and he applies it frequently. It is his theory of the "knowledge which is the cause of things" (*scientia quae est causa rerum*) as opposed to the "knowledge received from things" (*scientia accepta a rebus*). The first contains the perfect equivalent of the "By constructing they come to know."¹²

As we cannot expound here the whole of this theory we choose those points which are pertinent to our problem. St. Thomas uses this theory, for example, to determine and classify the objects of God's knowledge. He finds that God knows all creatures that exist. He knows them not only in their universal nature but also in their singularity and determinations and also in their *actual existence* in time. He knows them in that way *because* He causes them by His knowledge, which is the cause of things (*scientia quae est causa rerum*) in conjunction with His will and power. In this knowledge the ideas are the "forms which construct things" (*formae factivae rerum*). The things are the objects of the knowledge of vision (*scientia visionis*). Alongside these objects, He knows also all possible creatures "which are not, nor have been nor will be." He knows them in their singularity and in their possible existence. He knows them in this way because He knows them in His power or in the power of creatures (*Sum. theol.*, I, q. 14, a. 9, etc.), the source of efficient causality, and in His goodness (*De veritate*, q. 2, a. 8), the source of final causality. This is called the "knowledge of simple intelligence" (*scientia simplicis intelligentiae*; *scientia purae notitiae*) in opposition to the "knowledge of vision." The difference is placed in the objects, which are mere possibles

or which are actuals according as they are merely possible or are actual objects of His power. These are applications of the "By constructing they come to know." We read this as a general rule in *Summa theologiae*, I, q. 14, a. 11:

Since God is the cause of things by His knowledge, as stated above (art. 8), His knowledge extends as far as His causality extends. (Cum Deus sit causa rerum per suam scientiam, ut dictum est (a. 8), in tantum se extendit scientia Dei, in quantum se extendit eius causalitas.)

This theory is deduced from observation of the human artisan producing his work. He also is guided by an idea, a form productive of things (*forma factiva rerum*) and to that extent he has a knowledge "which is the cause of things." For the same reason he knows the existence of his work, provided his ideal knowledge is followed by an effective activity. But there is, besides this similarity, a great difference between the Creator and the human artisan. Both similarity and difference lead us to a solution of our problem. In both cases we must admit the general rule which we have just cited. For the human artisan, it is formulated after the opposition between the "forms received from things" and the "forms productive of things" has been described (*Q. D. De Anima*, a. 20):

Forms which are productive of things lead to knowledge of the thing to the extent that they are productive; hence the artist, who gives to the artificial thing a form or disposition of the matter, knows by the form of his art the artificial thing as regards what he caused in it. (Formae quae sunt rerum factivae, in tantum ducunt in cognitionem rei, in quantum eius factivae existunt; unde artifex qui artificiatio tradit formam vel dispositionem materiae, per formam artis cognoscit artificiatum quantum ad illud quod in eo causat.)

The parallelism is elaborated in *In Sententias*, I, D. 39, q. 2, a. 1, c., and ad 1. The plan (*excogitatio*) of the artisan is there called an active disposition by reason of the planned order to be executed in the thing. If it is only an idea without the will to put it into execution, then the disposition belongs only to speculative knowledge. When the will is added, then it pertains to knowledge and to will; when the execution takes place it thus pertains to knowledge and to will and to the power by which it is executed. It is only after the active execution that the knowledge which is the cause of things knows the existence of the work as it was conceived. Besides this similarity, however, there is a great difference and this difference is important for our problem. The Creator is the efficient cause

not only of the form, but also of the matter of His creature, and that is why, in accordance with the same principle, He knows the matter also and, by reason of this, also the singularity of this creature. This would be true also of the human artisan if he produced the matter as well as its form or disposition. Thus at the end of *Summa theologiae*, I, q. 14, a. 11, we read:

The same would apply to the knowledge of the artificer, if it were productive of the whole thing and not only of the form. (et esset simile de scientia artificis, si esset productiva totius rei, et non formae tantum.)

This is why the intellect of God knows the singular directly. But man, because he does not produce the matter, knows the singular not directly but by a reflection on sense cognition. The artisan himself knows his whole product with its singularity only through the intermediary of his sense perception and by reflection on it. But he knows the form which he produces in the matter (which is known by the senses), because his knowledge is here the cause of things, or a knowledge which is the cause of the thing known, a knowledge which consists in an active assimilation by means of which the knower assimilates the known to himself, in opposition to knowledge which is received from things (*De veritate*, q. 2, a. 8, ad 2). He knows the form then *as realized* in this matter which he sensibly perceives, and knowing this he also knows that the object of this perception, the matter, which is in potency to the form of which he is cause, *actually exists*. He knows this perception as knowledge of this actual matter. This is the keystone which thus far we were missing in St. Thomas's theory and it is the answer to the question, How do we know that our perception attains the actual as it is? The answer is, "By constructing they come to knowledge" (*facientes cognoscunt*).

This, then, is St. Thomas's theory. As always, he discovers, in concrete instances, the faculty from the act, and the act from the object; and the "object" does not mean the universal concept of "object" but the determined concrete object. Thus also the "act" is not the universal concept, "act," but the determined act which attains this determined object. Let us then analyze, in accordance with the indications of St. Thomas, the concrete cases we have mentioned, the cases of geometry and of arithmetic and algebra. They belong to the "mathematical arts, which are most speculative." Logic and logistics are to be classed with these arts as far as their operations and use of symbols are concerned. Each of these sciences, to

the extent that it is an operative science, acting on some matter, is a "knowledge which is the cause of things." But they have a very special matter, a matter whose reality the mind can grasp because of its intelligibility, namely, the continuum, and the multitude of extended things. The mind immediately sees some properties of these objects and therefore knows them as beings. For the mind the extended is an "intelligible matter" (Aristotle's *ἐλη νοήτη*): matter, because it reveals itself as an object capable of undergoing an action which works on these properties; and intelligible, because the intellect sees the relations there intellectually, by a formal abstraction. That is why we are told in *In Posteriora Analytica*, II, lect. 9, n. 5:

Intelligible matter is identified with the divisible in numbers and in continuity. (*Materia intelligibilis consideratur secundum quod aliquid divisibile accipitur vel in numeris vel in continuis.*)

Because this intelligibility manifests itself by an intuition of a necessity, this matter is called here by Aristotle and St. Thomas a "cause of necessity." In this lesson both authors consider one of the constructions and demonstrations of geometry and thence derive the metaphysical thesis of "By constructing they come to knowledge."

These objects are, therefore, subjected to an actual operation by the artisan, who has at least the first mathematical intuitions on extension and multitude, and who knowing their properties therefore knows them as possible beings. The artisan executes an *actual* operation on this intelligible matter, a division (the drawing of a line), an addition, a permutation or combination operation of geometry, arithmetic, and algebra, or the symbolic operations of logic or logistics. The mind already intellectually knows the properties of this intelligible matter which is being subjected to the operation, under the light of ideas. The artisan also knows the nature of his own power and its operation. He knows that they can cause such and such an effect in such and such a matter; he learns this from a glance at the phantasm. He knows that this operation, if performed, has this effect. All this knowledge is knowledge of essential relations. But at this moment he discovers something more. In reflecting, intellectually, he recognizes his own operation as a real and actual operation, effectively directed by this "productive form" or idea. It is the reflection we mentioned above, the reflection on the *esse*, the *actuality*, of "the things which are in the soul." With the aid of the phantasm man can also

form a pure representation of these operations. Then he has a represented operation on a represented object; and just as he knows the difference between an actual perception and a mere phantasm of a thing, so likewise he knows the difference between a purely represented operation and its actuality. For a represented operation, a represented matter suffices; for an actual operation, actual matter is needed. At this moment, man not only represents to himself his activity, he also knows his activity as actual in his own faculties, just as God knows the existence of His creatures in His power. And then, if he knows here and now his construction as realized, he knows the actuality of his object or of the ordered structure which he causes, and in this latter the actuality of the matter which he fashions; he knows them as they are.

If we want to formulate this immediate intuition, we can say: "I produce something, therefore matter for the product is actually present."

But to arrive at this end man, as a human artisan, must make use of his perception. And in this necessity, and by reason of it, he experiences this fact that a matter which is only represented permits only a represented operation; but an actual operation is accomplished on the perceived matter, hence the object of perception is truly actual, and present such as I represent it to myself to be. A reflection on this datum, a reflection which always naturally accompanies this process, leads to a formula similar to the adage of St. Thomas, "Whatever is seen to be seated, necessarily is seated."

The analysis of the rest of this process (the intuition of the result of the operation, and so on) is very simple. In the same object whose intelligibility and actuality we have discovered by means of our construction, we grasp by means of our perception the results of our activity, which we recognize again as necessary. There is no need to insist further.

This process, then, yields a twofold result. Ordinarily it is used for the discovery of essential relations, mathematical and logical truths. The philosophical analysis of the process, in accordance with that result, teaches us what we saw above, that such an experience leads to the knowledge of necessary truths. When we attend especially to the construction and the necessary role of the perception which effectively guides this construction—the unanalyzed view of the two elements accompanies the process naturally—then we can formulate the noetic truth that there corresponds to perception, by reason of its nature, an actually existing object, such as perception represents it.

All of this can, perhaps, be summarized in these words: our sensing

(*sentire*) is intimately bound up with a constructing (*facere*), and the whole is accompanied and penetrated by an understanding (*intelligere*).

Such, we believe, is St. Thomas's theory on the justification of the claim of sense perception, that it attains, in principle and by its nature, actual objects as they are, provided that the intellect finds in them a necessary nexus. It is the "By constructing they come to know" which guarantees this actuality. St. Thomas applies this theory, derived from considerations of the human artisan, to a multitude of problems where there is question precisely of a knowledge of an actuality: to God's knowledge of actual single existents, to God's knowledge of the mere possibles, and to the corresponding knowledge of the angels and of the soul after death. This system fits in perfectly with his general theory that we know the nature of our faculties by their acts, and the nature of the acts by their object. This knowledge of the sense faculties is preceded by the intellectual intuition of the possibility of this object, by reason of its intelligible, essential relations. The object in question here is intelligible matter, which has certain properties and which allows itself to be actuated in a way determined by the preceding productive form (*forma factiva*) of the human intellect. This matter, when perceived, is receptive in fact of this activity of man. Thus we discover the nature of the sense act which (1) represents this object and its properties truthfully, and which (2) grasps its actuality in this act. The nature of the act reveals the nature of the faculty. By its nature the sense knows this object and its actuality; always, however, on condition that the object contains a relation which the intellect intuits as necessary.

According to this theory, we can formulate the analogy of human and divine knowledge in these few words: in knowing His own essence, God knows possible creatures as terms of the imitability of His essence. The human soul does not contain all these perfections, but by means of its intellectual cognitions it can "become" all, according to the familiar saying. To this extent man has some resemblance to God. But from this same point of view there is also a great difference, for, besides the imperfection of the human intellect, there is also the fact that the soul becomes all dependently on existing things (*accipit a rebus*), whereas with God the inverse is true.

When the soul, by its apprehension, has "become something," it can, by reflecting on this apprehension, know its content as necessary, and hence as intelligible, and in turn, as being; this is another analogy with God's knowledge. This is similar to God's "knowledge of simple intelli-

gence." In this way man knows essences and their essential relations. To this knowledge belongs, first, the knowledge of the proper object, that is, mathematical and other similar essences and relations. Then, in consequence of a reflection, he knows the nature of truth (*veritas ipsa*), or the intellect itself, that is, the relations between the intelligence and being as such, the theory of knowledge and metaphysics. All this is still similar to the "knowledge of simple intelligence"; there is no need of objects which actually exist, and yet the judgments of this type of knowledge are completely justified.

God knows the actuality of His creatures in His "knowledge which is the cause of things," and in His creative activity. We find an analogous knowledge in man, but again there is a great difference. Man depends on matter, which he needs for his activity, but which he has not made. Consequently, he depends on his perceptions, through which he must "receive." And though he cannot exercise his activity unless certain conditions be fulfilled, yet when he acts he can know his activity by a reflection on this activity and on the ideas which guide it, and thus he knows the object of his activity as existing. This knowledge is again analogous to that which God has.

Finally, by reason of his reflections, even the uncultured man not only has knowledge but *he knows that he knows*. And in this also man has an analogy with God, who, according to the famous expression of Aristotle, is the "Thought of thought" (*νοήσεως νόησις*).¹³

CHAPTER XI

The Judgment of Pure Perception

1. THE ORIGIN OF THE JUDGMENT OF PURE PERCEPTION

THE CONCRETE CASES we took in the preceding chapter as objects of reflection always lead, by reason of their "matter," to necessary judgments, that is, to judgments whose nexus is necessary. This is to be said not only of the judgments concerning essential relations but also of those which affirm the actuality of these relations. The existence of the objective structure is evidently contingent, but the connection of its terms remains necessary. But it is only the judgments of the second category which are the object of the reflection leading to the knowledge of the value of sense perception and to the knowledge of the nature of the senses as cognoscitive faculties. It is then that the necessary relations between this existence and the nature of perception are known.

The judgments of the first category are not judgments of perception; the sense faculties only furnish their matter. Those of the second category are veritable judgments of perception, for perception not only furnishes their matter, but also a motive, controlled by the intellect. Nevertheless, they are not judgments of pure perception. For in a judgment the nexus is the principal object of the affirmation, and in judgments of the second category this nexus was recognized as necessary, and is affirmed as being by reason of its necessity and intelligibility, independently of the testimony of the senses. This latter is needed only for the affirmation of the actual existence of this nexus. This is also the reason why, in the case of a nexus known as necessary, it is sufficient to perceive the subject alone in order to affirm the predicate as an actual determination of this subject. This is why these singular judgments with necessary nexus (and known as such) are not judgments of pure perception.

We have a judgment of pure perception when there is question of a contingent nexus, or of one at least not known as necessary. Then, to make the affirmation, we must perceive the subject and also perceive the

predicate as a determination of that subject. Then what is affirmed is only the actuality of the two terms and the (material) connection of the terms. Perception is the *unique* motive for the affirmation of the *nexus*. This is what we call a judgment of pure perception.

The validity of this perception is established by the reflection we studied in the preceding chapter. But we must recall the prerequisite conditions which must be fulfilled to establish this validity. For in St. Thomas's theory we must suppose the intellectual intuition of an *internal*, necessary and, hence, intelligible, nexus in the predicate and even in the subject itself if the subject is not simply something indicated as "this" but is determined by a form. This nexus was, for instance, the relationship of running to motion, for the running of Socrates. We called this a "lateral nexus." But this intellectual intuition, preceding the affirmation of the actuality of the nexus between the subject and predicate, is not due to perception alone. We could then say that in St. Thomas's theory there is no judgment of *absolutely* pure perception, at least for external perception.¹ Nevertheless, we can call the judgments on a contingent objective structure, or at least on one not known as necessary, judgments of pure perception for the reason already given.

To be able to make these judgments legitimately, we have to have acquired the knowledge of the noetic nature of perception and of the perceptive faculties in accordance with the reflection analyzed above. The description, analysis, and discovery of this reflection in St. Thomas's works were long, but the reflection itself is very simple. The analysis showed that man is guided by that reflection, for example, in performing the most elementary calculations. The reflection reduces itself to this: the pure phantasm and perception differ in this respect, that it is only the latter which presents us with an "intelligible matter" allowing a real transformation of itself by our activity, in accordance with the properties belonging to this matter alone.

Here, then, is the origin of a judgment of pure perception: we already know a subject determined by one, or more than one, intelligible form, A. Then we see there a second intelligible form, B. Next we pronounce the judgment, "This A is B." We can also say, "This is A, and the same is B," if we already know the forms A and B. The new thing, the *unique* thing which we affirm *only by reason of perception*, and not at the same time by reason of its own intelligibility, is the *simultaneous presence* of A and B in the same subject. This judgment is justified by the prerequisite knowledge that perception attains the actuality of its object as it is; and this

knowledge in turn is the result of the reflection on judgments which have a necessary nexus.

2. THE NATURE OF THE JUDGMENT OF PURE PERCEPTION

There is, then, a big difference between the judgments of these two categories; their structure has profound diversities, despite their similarities as judgments. It is the diversity and the similarity which we studied in Chapters III and IV. The first category is that of the "*per se* judgments," and the other is that of the "*per accidens* judgments." Now that we know their origin and their justification we can better understand these diversities. The first category contains the judgments which have a formal nexus between the subject and predicate; those of the second category have only a material nexus; or we can say that the judgments of the second group affirm only a material identity between the subject and predicate in opposition to the formal connection of the others. The judgments of the first group affirm a necessary nexus, those of the second group, a nexus of fact. The first directly affirm essential relations, the relations of the "nature absolutely considered," the others, only actually existing relations. The first owe their origin to a formal abstraction, the others, to a perception of the meeting of two intelligible forms, known by abstraction, in the same subject.

But just as a judgment on an objective structure is known as necessary, so also a judgment of pure perception is always the affirmation of the *esse* of some content; both cases realize the essence of a judgment, that is, they are "concerned with existence" (*respicit esse*). But there is a difference as well in the origin and justification of this affirmation, as in its nature. The affirmation of an objective content, known as necessary, has its origin in the view of this content as an essential relation. This is the nature of these judgments, and the affirmation of a singular case is only the application of the universal intuition. The *esse* is affirmed only after the intuition of the essential relation to which this *esse* is attributed. In our knowledge the transition is from essence to the existence. In the judgment of pure perception, the relationships are inverted, at least as regards the nexus which is explicitly affirmed by reason of perception. Here the motive for the affirmation is perception; and what is known first is the actual existence. From this knowledge arises another, that of an essential relation; namely, the knowledge of this structure as a possible being. In our knowledge, then, the transition is from the actual existence to the essence. This is, we believe, the fundamental meaning of the adage, "The

illation from existence to possibility is valid" (*ab esse ad posse valet illatio*). We have not found this formula in St. Thomas; but the principle meaning of the adage is not that we can affirm the less (*posse*) if the more (*esse*) is true. Rather, its principal meaning seems to be that by the occurrence in fact of this nexus, we know it as something which the nature, or *essence*, of the subject and predicate *admits*. The existence of a black swan teaches me that the essence of a swan admits the color black. The fact teaches me something about the essence. And then the *posse* says no less than the *esse*.

Such, then, is the nature of the judgments of pure perception in opposition to the nature of the judgments of the first category. These latter can be distinguished into two well-defined groups. The first is that of the judgments which owe their origin to our first intellectual intuitions. They are the first principles concerning the object proper to the human mind. These are judgments on mathematical and similar objective structures. These judgments necessarily come first according to St. Thomas, because the human mind must "receive" from the senses, and, hence, from material objects. But man owes the intuitions themselves to his mind, he only depends on the sense data as supplying an object. It is only after these first judgments that we can have those of the second category, the judgments on the nature of truth, that is, the noetic and metaphysical judgments. They must follow the first because of this dependence and because the human mind, the possible intellect, must be first actuated by the forms of its proper object before being able to know its nature (the *veritas ipsa*, the *intellectus ipse*). And after these two groups comes the last, that of the judgments of pure perception. Although the human mind depends on the senses and must receive data from them, these judgments are last, not only in dignity and value, but also in respect to their origin.

Thus we have a triple division of judgments which perfectly parallels the familiar division of the three degrees of abstraction; nor is this only a chance occurrence. We first arrive at the judgments of the second degree of abstraction, then at those of the third, and finally at those of the first degree. It is clear that there is an abstraction also in the group of the first degree. We only judge determinations which are intellectually apprehended, and these are universal and abstract, but abstracted only from matter and material conditions. Only by a reflection on the senses, do these concepts become knowledge of the singular. But those judgments which affirm a nonintellective nexus do not owe their origin to a formal abstraction. It is evident that the noetic and metaphysical judgments suppose an abstraction of a higher degree than the first judgments; they owe

their origin to a formal abstraction whose object is one of these first judgments. This coincidence of the three groups of judgments with the three degrees of abstraction is not by chance. We believe that we shall not be able to understand this theory sufficiently without considering this coincidence; but we cannot here enter upon this question.

From the point of view of the sciences the judgments of pure perception seem to have only a very restricted value. Nevertheless, it is not necessary that this be always so. For it may well be that among these judgments there may be some in which the nexus between subject and predicate is necessary by nature, but which are judgments of perception because we do not directly know the necessity of this nexus, because of the absence of a formal abstraction in regard to this objective structure. There may be, however, other methods of supplying this defect. A first sign of a necessary connection, mediate or immediate, can be the *constant* occurrence of one form with another in the same subject. We can then summarize the perceptions into experimental *laws*. We can suspect, or suppose with probability, or even perhaps demonstrate with the aid of reasoning, some necessary nexus in these laws. We shall then have a *per se* judgment, we shall then know the necessity of the nexus. But our knowledge will be only deduced knowledge, we shall not have an *intuition* of the specific nature of the nexus. And yet the value of the judgment has enormously increased. We thus arrive at a science such as is expressed by the physical laws.

Another step forward can be made. We can look for the intuition of the necessity of the nexus, the constancy of which is expressed by the experimental law. The method of a hypothesis on the specific nature of the constant relations, or of the objects which they relate, serves this purpose. This is the method of the explanatory physical theories.

In both cases we have to furnish a substitute for the abstraction which is missing. We must not be surprised that man, in his attempts to achieve this end, has naturally made use of methods which resemble a formal abstraction and which, perhaps, could attain the results of abstraction.

The human mind has learned to submit the judgment of pure perception to a process of refinement; to this process we shall devote the following pages.

3. REFINEMENT OF THE JUDGMENTS OF PURE PERCEPTION

A. *Metaphysical Laws*. The objective structure affirmed by a judgment of pure perception is "being," even if it is contingent. This being should

obey the metaphysical laws we already know and those which we may yet discover. From this point of view there is only a difference of perfection between the two groups of objective structures, the necessary and the contingent, in so far as they are known as beings. A text we have already seen in part tells us (*Sum. theol.*, I, q. 79, a. 9, ad 3):

[The intellect] has perfect knowledge of necessary things which have perfect being in truth, since it penetrates to their very essence, from which it demonstrates their proper accidents. On the other hand, it knows contingent things, but imperfectly; forasmuch as they have but imperfect being and truth. . . . For contingent and necessary, though differing according to their proper genera, nevertheless agree in the common aspect of being, which the intellect considers, and to which they are variously compared as perfect and imperfect. (Necessaria quae habent perfectum esse in veritate, [intellectus] perfecte cognoscit, utpote ad eorum quidditatem pertingens, per quam propria accidentia de his demonstrat. Contingentia vero imperfecte cognoscit, sicut et habent imperfectum esse et veritatem. . . . Contingentia enim et necessaria, etsi differant secundum propria genera, conveniunt tamen in communi ratione entis, quam respicit intellectus, ad quam diversimode se habent secundum perfectum et imperfectum.)

But a contingent nexus, once known as being, necessarily obeys the metaphysical laws. Here is one law which St. Thomas applies frequently to contingent facts. We read in *Summa theologica*, I, q. 19, a. 3:

We judge a thing absolutely necessary from the relation of the terms. . . . In this way it is not necessary that Socrates sit; wherefore it is not necessary absolutely, though it may be so by supposition; for, granted that he is sitting, he must necessarily sit, as long as he is sitting. (Necessarium absolute iudicatur aliquid ex habitudine terminorum. . . . Sic autem non est necessarium Socratem sedere. Unde non est necessarium absolute, sed potest dici necessarium ex suppositione; supposito enim quod sedeat, necesse est eum sedere dum sedet.)

These last words express a metaphysical law which is valid even for contingent things. A few distinctions should be noted. There is no question here of a necessary relation such as we found between running and movement, or between "being seated" and "remaining in one place" (*Sum. theol.*, I, q. 84, a. 1, ad 3). Neither is there question of the necessary relation expressed by "What is seen to be seated, of necessity is seated." This latter is necessary relative to vision (*relate ad visum meum est necessarium*, as is stated in *In Sententias*, I, D. 38, q. 1, a. 5, ad 3). These are all necessities which precede a contingent judgment. Here, however, there is question of a necessity which is known after the contingent

judgment has been made. The known possibility (or being) of this objective structure expressed by the contingent judgment contains a necessity which can lead to a refinement of this same judgment. There is question of a conditioned necessity (*necessarium ex suppositione*) plus the judgment that the condition is fulfilled. It is a necessity in the contingent nexus itself, founded on the real possibility of this nexus [known from its factual existence]. This contingent nexus, actualized in the concrete, has now a determined existence, which it did not have in its cause, and thereby acquires a certain necessity. Hence it can be known with certainty. We read in the body of the article from the *In Sententias*:²

When contingent things are actualized in reality, then they have in themselves a determined existence; and hence, when they are actual, they can be known with certainty, as is clear in one who, seeing Socrates running, can have certain knowledge, since it is necessary that Socrates run while he runs. (Quando contingentia iam efficiuntur in rerum natura, tunc habent in seipsis esse determinatum; et ideo, quando sunt in actu, certitudinaliter cognoscuntur, ut patet in eo qui videt Socratem currere, quia Socratem currere dum currit, necessarium est et certam cognitionem habere potest.)

We are referred to *On Interpretation*, I, c. 9, 19 a 23-27 (cf. *In Periherm.*, lect. 15, n. 2), where the principle of contradiction is given as the principle of this conditioned necessity:

And this necessity is based on this principle: it is impossible to be and not be at the same time. (Et haec necessitas fundatur super hoc principium: impossibile est simul esse et non esse.)

Today philosophers would incline to say, the principle of identity.

This consequence of the knowledge of the contingent as being is not yet of great importance. What is more important is that as being it has an intelligibility which is not exhausted by the principle of contradiction. We already know that the subject of this objective structure, and of the judgment, has the predicate as a possible determination, and that this relation is in the order of essences; we also know, that, being in fact so determined, it cannot simultaneously be determined in a contradictory way. But there is more: the contingent being, as an actual being, should have, as such, its own intelligibility; for the unintelligible cannot exist. But the *contingent* objective structure cannot have this intelligibility of itself, it must have it in something else. This latter is its efficient cause.

We thus discover again, and now universally, the principle of causality (see above, Chap. VII, Sect. 7). It is perception, discovering the existence of this nexus after its nonexistence, or inversely, which manifests the contingency of this nexus, and thus leads to this knowledge of causality.

Thus we establish the big difference found above between the *per se* judgments and the *per accidens* judgments (Chapter III and Chapter IV). The first have a predicate which flows from the subject, and which for that reason is actually realized if the subject is existing. In the other judgments this is not true, and hence the actualized contingent objective structure is intelligible, not by reason of the subject, but by reason of an exterior cause. We read in *De potentia*, q. 10, a. 4:

Everything that is in anything *per accidens*, because it is extrinsic to its nature, must be found in that thing by reason of an exterior cause. (Omne quod inest alicui per accidens, cum sit extraneum a natura eius, oportet quod conveniat ei ex aliqua exteriori causa.)

This is said in opposition to the *per se* predicate, of which it has been said shortly before:

Whatever things are in anything *per se* either belong to that thing's essence or flow from its essential principles. (quaecumque per se insunt alicui, vel sunt de essentia eius, vel consequuntur essentialia principia.)

And this is why such a nexus does not demand any exterior cause; it is intelligible of itself.

The simple judgment of perception indicates of itself, by reason of its contingent nexus, another thing, its cause. Hence, it must be connected with something higher, and be thus refined. This simple judgment is a link with metaphysics. There must be a cause of the actuality of this contingent nexus. This is clear in consequence of the principle of intelligibility. But the data do not say which substance is, or contains, this cause. The first task of further research will be to find this cause, if possible. But in this matter we run up against the great difficulty that we cannot experience causality itself, at least in regard to exterior things. If this research is successful and we find the agent which realizes this contingent objective structure, then this result is a new judgment of perception, but a more perfect one; it is a causal judgment. But immediately a new task awaits us, since the fact that the agent is known does not reveal to us its manner of acting or the "how" of causality.

B. *The Causal Laws*. This research gives us new judgments, which are always judgments of perception, demanding a further refinement; but if there is question of necessary causes the judgments do not affirm a contingent but a necessary connection; they are *per se* judgments. But what is lacking, at least provisionally, is the understanding or the intuition of the specific nature of the nexus.

Even among the simple judgments of perception, which we have provisionally considered as judgments on a contingent connection, there are some of this nature. For certain determinations of a subject are not immediately recognized as properties, and yet they truly are properties, not caused by an exterior cause but flowing from the subject and consequent upon the essential principles of the subject. The constant recurrence of these determinations in our experience will lead to the opinion that these judgments are in themselves *per se* judgments with a necessary connection, but the specific nature of the connection escapes us. This second group of judgments, where the nexus is conditioned by a cause internal to the subject, should be classed with the properly causal judgments. The judgments of both groups need further refinement if possible.

These causal laws differ from the judgments affirming mathematical properties, because we know by intuition the character and origin of the latter. The absence of this intuition in the causal laws is a consequence of the lack of formal abstraction in these judgments of pure perception, especially in regard to causality. If this defect could be remedied, the connections in these laws would be known by us, as the relations and objects of mathematics are known. Hence, it is the task of the physical sciences to fill in this gap. The first refinement gives us the laws. Further research must resort to hypothesis and physical theory, and by this means endeavor to find the "why" (*propter quid*) of the laws.

The study, both of the laws and of the theories, has its difficulties. Even St. Thomas insists on the difficulty of physical science (for example, *In Boethium De Trinitate*, q. 6, a. 1), in opposition to mathematics and also to metaphysics, despite the proximity of the object of physical science to the source of our knowledge, the senses. The cause of the difficulty lies in the complication of the physical data, or sensible matter, and the variability of its objects. But we should note that mathematical knowledge itself is faced with the same complication, for it too must derive its first judgments from the same sensible data. But formal abstraction makes it possible for us, in mathematics, to disentangle from the complication of the forms given at one time, the only form which is important. We are

unable to do this with the physical factors. True abstraction does not consist in a comparison of different cases and the search for the common element in these cases—this is a procedure of physics. True abstraction can take place in regard to data here and now present, even though there is question of only a single instance. That a body is divisible by reason of its extension alone, and not by reason of its color, is an intuition we have directly, without any comparison. No doubt we need sense experience to arrive at this knowledge but as a preparatory condition and not as a motive. If this mathematical intuition had to arise—as is the case with physical methods—from the observation that a red, a blue, and a green body are divisible, and that in consequence the specific colors were not important, then the conclusion might be drawn that “color” in general is the reason for the divisibility. No, even though we cannot eliminate all color, we know, by reason of the intellectual intuition alone, that even color in general is of no importance; we do not know it by reason of the experience, we have the intellectual intuition of the divisibility as arising from the extension alone. This is true formal abstraction. It allows us to single out, even from a confusing mass of sense data, the uniquely important form, extension. The lack of this power of formal abstraction for the physical factors makes necessary the laborious research, both experimental and theoretical, which is the method imposed on physical science.

But there are two favorable circumstances. Here is the first. The objects of perception which are subject to physical variations have extension, and this latter remains subject to the laws of mathematics.³ The extended can be examined *a priori* according to the laws of mathematics, and so also the variability implied by the extended, namely division and movement, at least under their passive aspect, as we shall see immediately in some examples. Moreover, the qualities themselves are subject to extension, and qualitative variations are connected with quantitative changes, and hence by reason of this can be known and measured. St. Thomas knew the application of geometry to light rays and of arithmetic to sound, he also knew the measure of intensity by reason of its quantitative relations. These two circumstances imply that the perception of phenomena and the examination of the laws can be done quantitatively, in accordance with mathematical analysis. This possibility makes for greater exactitude both in observation and explanation, an exactitude which gives to one experiment, or controlled experience, much more value than a vast collection of uncontrolled perceptions.⁴ In its own way all this is a further refinement of perception.

C. *Some Concrete Cases.* In the good Thomist manner let us see all this in concrete cases.

1. **METAPHYSICAL CASES.** Observation of the things of this world and of their nature teaches us in the first place their variability. This variability was one of the first philosophic problems. Long ago Parmenides had placed this problem in the sphere of metaphysics, and his theory of being could see in variation only a pure appearance. Thus, for him metaphysics could not refine judgments of perception, it could only correct them, or rather, deny them. Aristotle knew how to conceive more profoundly the structure of being, and he was able to give a metaphysical justification to its possible variability. This he did by his theory of act and potency in the order of being. This theory does not simply say, "The illation from existence to possibility is valid," but it analyzes this possibility and finds that it implies a subjective potency in the order of being, *potentia ens* (δυνάμει ὄν). Thus, perception of change becomes the occasion for a far-reaching theory.

But it was more than an occasion, it became an argument for the real value of the Aristotelian theory. For being is not so transparent to our intellect that we can establish completely *a priori* the possibility of an intrinsically variable being. Let us compare our intuition of "being" with that of "the extended." The extended is known by us with such clarity that we are immediately able to understand its divisibility; similarly we immediately understand the real possibility of "localization" and of "motion." We do not know *being* in such wise that we can immediately grasp in it the possibility of internal change. According to Aristotle's theory this much is clear, that if there be an intrinsically variable being, then it must have the Aristotelian structure, it must satisfy the conditions which Aristotle laid down for the components of such a being as being. But whether such composition is really possible cannot be known by us independently of experience. This is what perception supplies: there are in fact internal changes in being, hence these beings must have the structure prescribed by metaphysics. Perception is not only an occasion, it is an argument. It should also furnish an argument for the further investigation of changes which will decide whether the changes are accidental or substantial. All this is a refinement of perception and of these judgments, and has its influence even on metaphysical problems.

2. **CASES FROM MECHANICS.** Mechanics, especially celestial mechanics, which is in part only an application of geometry to natural phenomena,

furnishes us with very ancient and very important specimens of refinements of judgments of perception. This science involves St. Thomas's "work of measuring" and "calculation of the course of the stars." This science is an object which is well adapted for the study of the refinement of judgments of perception, because in it the following factors are very intimately interlaced: a purely mathematical (and to that extent perfectly clear) object that is realized in the concrete; and, secondly, by reason of this concretization, a physical object whose elements are not clear to us because in their regard we are without formal abstraction. Moreover, the different threads of this weave are clearly distinguishable. We find, on the one hand, what is purely mathematical and clear, the "composition" of movements, velocities, and accelerations, and the possible analysis of these three into their component elements. On the other hand, we have to distinguish what is physical: the causes of these effects, namely, activities and forces. Let us take an example which is important even from a historical point of view, the doctrine characterized by the names of Tycho Brahe, Kepler and Newton, and in former times by Eudoxus, Ptolemy and Copernicus.

From Tycho Brahe's numerous and exact observations Kepler, by means of the laborious work of many years, deduced his famous laws. The first says that the orbits of the planets are ellipses, and one of the foci of these ellipses is occupied by the center of the sun. The same must be said of the satellites in relation to their planets and of the moon relative to the earth. This is already a first and very important phase in the process of refinement of judgments of perception. It is the fruit of laborious research consisting of exact observations and of mathematical elaboration of the results obtained by observation. To appreciate this importance we need only recall the progress made in observational methods and mathematical treatment since the systems of Eudoxus, of Ptolemy, and even of Copernicus. We must thank Tycho Brahe for the first, and Kepler for the second.

In regard to the work of Kepler let us note the following. To begin with, his work was a generalization of the results of observation in this sense: the observations only give the discrete *positions* of the planets at different *moments* of time. The first law of Kepler places the planets on continuous orbits which contain an infinite number of positions besides the observed positions. The intermediary positions are interpolated, the future positions are calculated, and the result of these calculations can be confirmed by new observations. But on the other hand, as long as there is question

only of a *purely mathematical* consideration of the movement of a real body in relation to another, one can arbitrarily choose the co-ordinate system; that is, one may arbitrarily consider one or another of the bodies as at rest. It will be a question only of greater or less simplicity in the analysis and calculation. Under this aspect the law of Kepler already has great merit. Nevertheless, because these are real movements of objects which are related to physical factors, of objects which demand an explanation by means of efficient causes, the choice of a system of co-ordinates must be such as to give hope of bringing the physical research to a successful conclusion. We shall return to this in a moment. The first task, the search for an orbit, was not easy. Kepler devoted many long years to it, and it was only after having examined eighteen other curves, as possible orbits, that he decided to try the ellipse, and only then was he successful. We must note carefully that even now, because observations are never absolutely exact, there are an infinite number of curves which could fit with sufficient exactitude Tycho Brahe's observations. On the other hand, the form of these curves cannot notably depart from the simple ellipse of Kepler. This is the first but not the only result of the refinement of these judgments of perception.

Kepler succeeded in discovering, in Brahe's observations, a second law, namely that the areas swept out in any orbit by the straight line joining the centers of the sun and a planet are proportional to the time; this was found more easily after, or during, the first discovery. From this law, Newton, by applying a theorem of Huygens, was able to deduce an important theorem by a decomposition of the velocities (the operation, again, was purely mathematical): the planet, throughout its movement, is continually subjected to an acceleration *directed toward the center of the sun*—an acceleration, that is, a change in velocity (speed in a direction). Newton immediately spoke of a "force," but this is not yet necessary, since we can provisionally, from a mathematical point of view and analyzing only the facts, still speak of acceleration. This acceleration, however, leads us to the formulation of a physical law which implies causality. For this universal law of acceleration indicates (almost in the literal sense of "pointing out") the sun as the cause of that acceleration. That is why Newton spoke of a force and not merely of acceleration, even though it was the acceleration which he had discovered by his analysis. He calls the force an attractive force, gravitation, whose magnitude is proportional to the acceleration and which has its origin in the sun. This is what we have called above the search for the substance which is, or which contains, the cause.

Kepler discovered something else. He found, in the same material and only after repeated attempts during many years, a third law formulating a mathematical relation between certain elements of the different planetary orbits, the major axis and the period of revolution [the squares of the periodic times which the different planets take to describe their orbits are proportional to the cubes of their mean distances from the sun]. The same law holds good for the different satellites of the same planet if there are more than one. From this law Newton deduced, again in a purely mathematical way, a new property of the acceleration: the acceleration of the planets belonging to the same central body is inversely proportional to the square of their distance from the central body. The direction of the acceleration told us something about the place of its cause; this new result now reveals to us a property of the nature of the cause. It tells us that the intensity of this cause decreases as the square of its distance from the planet. We can mention now, in passing, that this same law of accelerations (or of the attractive force) puts us in a position to calculate a correction of the first simple scheme, a change in the course of the planets, and it permits us to calculate the perturbations of their orbits. It was this calculation which eventually led to the discovery of a new planet, Neptune. The discovery was made by Leverrier.

Newton was able to deduce all this from the laws of Kepler, hence, in fact, from the observations made by Tycho Brahe. Further observation led him to still further results. The moon is the satellite of a planet, the earth; its acceleration towards the earth—its “fall” towards the earth—should be subject to this law, and, hence, should be inversely proportional to the square of its distance from the earth. Hence, Newton set about comparing the acceleration of this “fall” of the moon with the acceleration of the fall of bodies on the surface of the earth. For this purpose he had need of other observations, of measures of the length of the radius of the earth, and of the acceleration of the fall of bodies on the earth (gotten from experiments with the pendulum). The mean distance of the moon, measured in radii of the earth, was known from astronomical observations. When making his first calculations, a dramatic incident took place. Newton made use of an inaccurate value for the radius of the earth. In consequence, his hopes were disappointed. For this very reason, however, he found all the greater satisfaction when, a few years later, newer and more accurate values for the radius of the earth brilliantly confirmed his predictions. He found that the moon and terrestrial bodies fall to the earth according to the same law of acceleration; that is, the acceleration of their

fall is weaker in proportion to the square of their distance from the earth. In this way Newton was led to his greatest discovery, that of universal gravitation. The same cause which directs the course of the planets around the sun and that of the satellites around their planets, regulates also the fall of bodies to the earth; in this regard the matter of the sun and of the planets is the same as that of the earth and the bodies upon it. This discovery is the result of the observations of Tycho Brahe and of others who made manifest the length of the radius of the earth and others again who discovered the laws of the pendulum. All this is truly a refinement of judgments of perception which lie at the base. These judgments finally led to universal knowledge of the essential relations of bodies.

We add here a few remarks. It is only in this order of ideas that the law, or principle, of inertia (which says that a body in movement, withdrawn from "external" influences, continues in a straight line with uniform velocity), manifests itself in its meaning and exactitude. This principle has consequences of philosophic value; for example, the theory of "impetus" supposes it.⁵

We have already mentioned force as the cause of the acceleration. To the very end we could have spoken only of acceleration, and we would then have remained in the purely mathematical consideration of the laws. We would have compared the results of experience expressed in judgments of pure perception only with the matter which is the subject of formal abstraction (of the second degree of abstraction), a purely mathematical matter, realized, however, in physical bodies. This is why this deduction of Kepler-Newton is possible, and this is why it has value. We could at the end have made the transition to gravitation as the cause of these accelerations, and deduced something of the nature of this force and of the laws discovered. We must admit a cause of these accelerations;⁶ this is demanded by the principle of causality, itself a result of a formal abstraction. In this manner we are able to distinguish better what is due to perception itself: the knowledge of the thing that contains the cause, the sun as the cause of planetary movements, the matter of the sun and of the planets and of terrestrial things as the cause of universal gravitation, the knowledge of the law of the dependence of attractive force on distance, and, lastly, the discovery of the important notion of "mass," both active and passive [gravitational and inertial] mass. These results are not the fruit of a formal abstraction, as is clear from the fact that despite the certitude of the results, the understanding of the essence of gravitation and of the essence of "mass" is not had. But we do know that there are

no spiritual beings who move the planets, but rather that it is the sun and the activity which is at the base of the "principle of inertia." Also we know that the perturbations of the planetary orbits have their cause in the "mass" of the other planets, and that the "free fall" of bodies here on earth has the same kind of causes.

The sense origin (which is not formally abstractive) of these cognitions has another consequence, one which concerns the exactitude of the results. Above (Chapter IX, Section 3) we saw that the *application*, to a material reality, of knowledge which is formally abstractive and absolutely exact must sacrifice the exactitude, though the necessity remains. That the area on the surface of a sphere is proportional to the square of the radius is an absolutely exact law. But if we measure an existing sphere, we shall find in our results deviations from this law. These are to be attributed to a double departure from the absolutely exact ideal. What we take to be a sphere may not be a perfect sphere and our measure of the radius is not absolutely exact; and thus the surfaces of the two apparently real spheres will not be proportional to the squares of their radii. But two observations should be made: to begin with, the deviations are not greater than must be expected from the inexactitude of the process of measuring (we are supposing that there has been no error of calculation), and in consequence it would be absurd to attribute the deviation to the mathematical law itself, and it would be absurd to want to correct the law. This is not exactly the case of Newton's law, though it also contains a magnitude which is proportional to the square of a radius, or a distance. But this law is not the fruit of an abstractive intuition, nor is it a conclusion drawn from such truths. It has in part an experimental origin, being the fruit of perceptions or observations. It carries the mark of this origin which cannot guarantee its absolute exactitude; that is why it is conceivable that the decrease of acceleration (and hence of force) with the square of the distance may not be absolutely exact, but only true by approximation. Hence, it is conceivable that future and more exact experiments may discover facts which may make necessary a correction in the law itself. And thus it may be that mechanics contains other laws which have been considered as exact, but which in reality are only approximative. The theory of relativity might find its explanation in this character of the laws of mechanics.

Finally, there have been philosophers who have defended the thesis that the quantitative measure of phenomena would make us lose contact with reality and with the nature of things. History teaches us, without further analysis or formulas, what we must think of such a thesis. It melts

away like snow in the sun. Measure, the most exact measure possible, leads to an incomparably surer knowledge; it leads to a knowledge of the nature of things, which, without these measures, would remain hidden in absolute obscurity.

3. PHYSICAL CASES. The exact astronomical observations which led to these valuable results are in truth only refinements of the observations which were made in antiquity. There existed even then another science which was an application of mathematics to physics, to realized mathematical objects. These objects were light rays. In them the physical and mathematical elements are immediately connected. The Middle Ages, which succeeded in making real progress over antiquity in this matter, called this science an "intermediate science" (*scientia media*) and, specifically, the science of "perspective" (*perspectiva*). Here again measure and the element of exactitude led to a valuable refinement of the judgments of pure perception. We can give a rapid sketch of only one case.

Light rays in general are refracted in passing from one medium to another. If the first medium is, for example, air and the second is glass or water, then the angle of refraction is smaller than the angle of incidence; an increase in the angle of incidence results in an increase in the angle of refraction. But there is not simple proportion between these quantities; there is, however, a constant ratio between the sines of these two angles for a given substance. This is the law of Snell-Descartes. This law of sines [that the ratio of the sine of the angle of incidence to the sine of the angle of refraction is a constant for given media ($\frac{\sin i}{\sin r} = \mu$)]

synthesizing the observations of individual refractions is perfectly analogous to the result of Kepler when he made the orbit of the planets ellipses. We shall not consider the historical details. We only note that the success achieved by introducing this function, the sine of the angles, opened the way to the deduction of very complicated optic systems and even opened the way to an explanation of the nature of light.⁷

The rays of the different colors differ in refraction, and so one can, by means of a prism, disperse the components of composite light and observe separately the different colors. This is a simple perception but one which has been astonishingly perfected by different instruments. The perfection of this procedure is shown by the results, some of which we shall now mention. In the spectrum of light from the sun certain simple colors were found which were not found in radiations from any known terrestrial

body; this revealed the existence in the sun of an unknown element, which was called helium, and which later was found on the earth. It was recognized by its spectrum. This is a special case of the general law that every chemical element has its own spectrum. Its spectrum is a property of the element in the strict sense of the word, its best known property. And this property can give a solution to the problem of substantial change in inorganic nature.⁸ What we have said should suffice to make clear, according to St. Thomas's method of reflecting on concrete cases, the importance of judgments of perception, especially after their refinement by modern methods.

There is another detail of noetic importance. Formal abstraction is a property of our minds in dealing with mathematical objects, in the midst of the complications in which these objects are realized in nature. Our minds do not have this power in respect to the physical factors of these objects, but the spectroscope in some way takes the place of this defect in ourselves, for it disperses the colors in such wise that each separate homogeneous color, as well as those that are characteristic of the chemical elements, may be observed in each complexity. It is a kind of "physical abstraction" of the colors. This is why perception can lead to such valuable results. And yet it is only a substitute, since the intuition of the necessary connection of the property is not had; and this intuition is the characteristic of true formal abstraction. Theoretical research attempts to supply for this defect. Once again we see, in a concrete and specific case, the great value of experiment and exact mathematical treatment; without this method, the refinement of the judgments of perception would be, and would remain, impossible.

4. METHODS. We already touched upon chemical methods in the last example. Let us look at another complication, which, according to St. Thomas, is the cause of the difficulty of the physical sciences, a difficulty which touches chemistry in general. It is the complexity of the materials themselves as found in nature. They are almost always mixtures, and often very complicated mixtures. To obviate the difficulty there are methods analogous to the "physical abstraction" just mentioned. We mean the methods used in preparing "pure substances" and in controlling this purity. When we deal with a pure substance, a single experiment may suffice to determine the physical constants, the true properties, of that substance. The judgments which affirm them are refined judgments of perception.

There is another complication which arises even in the study of "pure substances." The generic activities of nature—these are not properties of the specific substances—have their influence on the observed phenomena; for instance, the activities of nature studied under the names of pressure, heat, light, electricity, and magnetism. Often these influences cannot be entirely eliminated, and in some cases not at all; hence their effects are superimposed. Even then, however, there is a method which is analogous to formal abstraction. Often we can discover means for determining the degree of intensity of these activities. Once we have constituted a scale of these intensities, we can at least keep their influences constant when they cannot be eliminated. By so doing, we can study the effect of the variation of each one of these influences taken separately. Such methods lead to laws which summarize the influence of all when taken together. Again, we have here an analogy with formal abstraction. The great importance of exact measure, even of intensities, is evident. This method is the foundation for the pre-eminence of "experimentation" as opposed to simple perception or "experience."

But as a consequence of the lack of a true formal abstraction, even the best known and most certain natural laws, which are found by this method as highly refined judgments of perception, do not give us an *understanding* of the relations so found. The certitude we have is not less, we are not less convinced of the fall of a stone let loose from our hand than we are of the fact that twelve will result from the addition of five and seven; but we understand the latter fact by reason of our daily experience, but the former fact we do not understand. At this point we have to introduce what is called an explanatory "physical" theory. The search for a theory consists in trying to fill a gap in our knowledge of the laws that describe the causes and the properties which are objects of experience. This research may be perfected by a process which resembles formal abstraction. We have in mind the principle we have called the "rule for discrimination of the elements of a theory," or the "principle of elimination of superfluous elements" (see above, Chap. IV, Sect. 1, note 2). This method consists in retaining in an explanatory theory only the necessary and sufficient elements of a cause, and in eliminating superfluous elements. This is done, not in the objects, but in the ideas we form of the objects. It does systematically what formal abstraction does naturally; this is why it leads to an understanding of the causes and can lead to an intuition of a connection which is not only *per se*, but also *primo*, the affirmation of which is convertible (*loc. cit.*).

D. *Résumé*. Admittedly, this exposition has been summary. In the actual practice of science these methods are all used, oftentimes together and even intermingled. Theoretical efforts do not wait for a definitive experimental result, but accompany experimentation. In practice we find theories which make an appeal to intuition and theories which reduce a complicated law to another, more simple one. Thus is opened up a domain where much will have to be explored before it will be possible to construct a complete and specific theory of human knowledge. The value of induction in the modern sense cannot be judged adequately until after the facts are assembled in this field.

In this exposition we have limited ourselves to the physical sciences because here the relationships are clearer. If one wishes to extend this research to other domains of human knowledge, he will have to examine concrete and specific cases, just as is done by the Thomist method. Meyerson, in his works, has done something similar; we believe that his results would have been still more valuable had he had a noetic guide like St. Thomas's theory of the judgment, some elements of which he rediscovered.⁹

CHAPTER XII

The *Cogito ergo sum* of St. Thomas

1. REFLECTION ATTAINING REALITY

AS WE HAVE ALREADY SEEN in the *In Sententias*, III, D. 23, q. 1, a. 2, ad 3 (Chapter V), as well as in other texts, St. Thomas divides the reflections of the soul on itself or on those things which belong to it into two principal classes. The first reflection, restricted to the intellect, leads to the knowledge of the nature of the acts and of the faculties of the soul itself. The reflections of the second class, in which the senses also participate in their own way, only attain the actuality of the diverse acts:

In another way the soul reflects upon its acts by knowing that those acts exist. (*alio modo anima reflectitur super actus suos cognoscendo illos actus esse.*)

We have already described how and to what extent the senses can exercise this reflection (Chap. V, Sect. 2), and we shall not return to this point. We shall only remark that admittedly the common sense does not attain the notion of being (Chap. VIII, Sect. 1), it only experiences the actuality, the presence of the determinate sense operations whose differences it senses. Here as elsewhere the sense has no strict judgment, no affirmation or negation. The intellect does more; by its reflection on the existence of the operations of the soul, it knows also the notion of being, it can affirm these operations as beings and *here and now as actual beings*. Then, and this is of the highest importance, since the intellect can attain the nature of things, in this reflection it can discover and affirm a necessary relation if one is present. Especially can it discover and affirm the relation between thought, or sensation, and the substantial existence of the mind which thinks. For the actuality of thought presupposes, with at least a priority of nature, the actuality of the substance of the thinker,

that is, of man and his intellective soul. The intellect sees this necessary relation in the concrete and then it affirms a principle which became famous in its formulation by Descartes, "I think, therefore I am" (*cogito ergo sum*). St. Thomas fully admits this principle, even though the formula of Descartes is not found in his works. He recognizes it as a first principle, an immediate one, even though it is not for him, as for Cartesianism, the first principle. For St. Thomas, it is one among others.

2. EQUIVALENTS OF THE *Cogito ergo sum*

Here are some texts containing St. Thomas's doctrine on this judgment. In *De veritate*, q. 10, a. 8, he raises the question, How can the human mind know itself? As regards its existence (*an est anima*) and especially as regards the actual, not habitual, knowledge of its existence, St. Thomas carefully distinguishes several modes in our knowledge of the soul. His answer is as follows:

The soul is known by means of its acts. For one perceives that he has a soul and lives and exists, inasmuch as he perceives that he senses and understands and performs other such vital operations. Hence, the Philosopher says in *Ethics*, IX, "we sense that we sense, and we understand that we understand; and because we sense this, we understand that we exist." No one, however, perceives himself as understanding except from this, that he understands something; for to understand something is prior to understanding oneself as understanding; and therefore the soul arrives at actually perceiving that it exists, through the fact that it understands or senses. (*Anima cognoscitur per actus suos. In hoc enim aliquis percipit se animam habere et vivere et esse, quod percipit se sentire et intelligere et alia huiusmodi vitae opera exercere. Unde dicit Philosophus in IX Ethicorum, "sentimus autem quoniam sentimus, et intelligimus quoniam intelligimus; et quia hoc sentimus, intelligimus quoniam sumus."* Nullus autem percipit se intelligere nisi ex hoc quod aliquid intelligit; quia prius est intelligere aliquid quam intelligere se intelligere; et ideo pervenit anima ad actualiter percipiendum se esse, per illud quod intelligit vel sentit.)

The thesis that the soul knows itself by its acts is quite familiar to us. Here there is question of the knowledge of the *existence* of the soul in us. This existence is easily known by means of an intuition. It is a perceiving or an experiencing (*percipere, experiri*), and notably a perceiving of the existence of the soul in the perception of its actual operations. This operation is perceived first (*natura prius*). A man perceives the operation (for example, an act of understanding) as an operation of himself, of his soul—this is the starting point. Then he perceives that the subject of this opera-

tion, the soul, itself *exists*; "and therefore the soul arrives at actually perceiving that it exists, through the fact that it understands or senses." And, as the final words of the text say, the knowledge of an exterior object must always precede: "To understand something is prior to understanding oneself as understanding." This knowledge of the existence of the soul comes about very easily; the soul perceives itself *in* the perception of the act of understanding.

What we have said earlier is, of course, still true here, there is only one determination or likeness; it is that of the proper object, the structure of a material object.

The Aristotelian text to which St. Thomas refers us (*Ethics*, IX, 9; 1170 a 31) also begins with the remark, "We sense that we sense and we understand that we understand." The text continues with a causal proposition, "*Because* we sense and understand, [we sense and understand] that we exist."¹ The passage from *De veritate*, q. 10, a. 8, also had a causal proposition: "Because we sense this, we understand that we exist." But this proposition expresses the "*cogito, ergo sum*" only indirectly (*in obliquo*), for directly (*in recto*) it affirms the noetic connection, the way in which the "*cogito, ergo sum*" is known: to begin with, I know the thought as an actuality in me, and then in this actuality I know the existence of the soul. The causal proposition is a noetic thesis, affirming directly the connection between the two perceptions. But this affirmation of the connection between the two perceptions, that of the operation and that of its subject, affirms also, but *in obliquo*, the connection between the contents of the perceptions: the actuality of the operation implies the actuality of the soul as its subject. The "*cogito, ergo sum*" affirms *in recto* this second connection, and (by reason of the *ergo*) affirms *in obliquo* the noetic connection.

Descartes himself used a causal proposition to express the connection between the doubt (rather, the perception of the doubt) and the knowledge of the existence of the subject. In the incomplete work, *Inquisitio Veritatis* (Adam and Tannery ed., X, p. 515), we read: "You, therefore, are, and you know that you are, and you know this because you are doubting" (*es igitur, et te esse scis, et hoc quia dubitas scis*). For him, this is practically equivalent to a categorical proposition affirming the objective connection between the thought and the being. A while before he had said, "It is also true that you who are doubting exist, and this is so true that you can no longer doubt about it" (*verum etiam est, te qui dubitas, esse, hocque ita etiam verum est, ut non magis de eo dubitare possis*). The

first half of this sentence no longer contains, even *in obliquo*, the connection between the perceptions, as was the case with the "*cogito, ergo sum*." The first published Cartesian proposition, a formula of the *Discours de la Méthode*, is also a categorical proposition affirming only the objective, necessary connection.

The knowledge and the affirmation of the objective structure is expressed by St. Thomas in *De veritate*, q. 10, a. 8, ad 8, in contr., as follows:

In this respect the science of the soul is most certain inasmuch as each one experiences in himself that he has a soul and that the acts of the soul are present in him; but it is very difficult to know what the soul is. (Secundum hoc scientia de anima est certissima, quod unusquisque in seipso experitur se animam habere, et actus animae sibi inesse; sed cognoscere quid sit anima, difficillimum est.)

St. Thomas thus tells us that the knowledge of the existence of the soul is, for man, most certain. Then the source of this knowledge is indicated. Here the *perceiving* mentioned in the body of the article becomes an *experiencing*; even as regards the knowledge of the soul itself, that is, as regards its existence (for its metaphysical nature is always most difficult to know).

We can read the same thought in the introduction of the *In De Anima*, lect. 1, n. 6:

This knowledge of the soul . . . is certain; for each one experiences this in himself, namely, that he has a soul and that the soul vivifies. (Haec scientia, scilicet de anima . . . certa est; hoc enim quilibet experitur in seipso, quod scilicet habeat animam et quod anima vivificet.)

The text of Aristotle, repeated by St. Thomas, also said, "We sense that we are." At first sight these words seem to attribute to the senses the power of enunciating a real judgment, recognizing and affirming existence; and this would presuppose knowledge of the notion of being. If these words were taken literally, they would contradict the interpretation of the sense judgment (*iudicium sensus*) we gave above. However, there is no contradiction; for there is question here of a "sensible *per accidens*," of an operation of the intellect which is only attributed to the sense. We have seen under what conditions this can be done (Chap. VIII, Sect. 1), for example, if the intellect can make the judgment immediately (*statim*) after a perception. Then the content of such a judgment is a "sensible *per accidens*." We say, "We sense that we are," in the same way in which we

can say, according to St. Thomas, "I see that the man is alive" (*In De Anima*, II, lect. 13, n. 396). What the senses truly know in a sense way is that the perception is actual; in this datum the intellect immediately grasps the existence of the subject.

3. THE STRUCTURE OF THIS KNOWLEDGE

This reflection on the actuality of our operations teaches us the existence of their substrate, the soul. The intellect does not only know the factual connection between the two actualities; it knows more, it knows the nature of the things and the necessity of this connection. There is here a real act of understanding. For among these actualities there are some accidental and some necessary connections. While thinking, I hear a tune; there is here an accidental, contingent meeting of two actualities, my thought and my hearing, in the same subject. There is only a fortuitous, material connection between these actualities. But this is not so in regard to the actuality of my thought and the actuality of my soul and of myself. There is here a necessary connection which is known as such, in this sense: the substantial existence of the subject is necessarily presupposed with a priority of nature by the accidental existence of the operation. In the order of perceiving or experiencing the sequence is inverse; we first (*natura prius*) know the operation, and then *in* or *from* this latter² we know the actuality of the subject. But we intellectually perceive the actuality of the subject as prior in nature, and we know the connection between accident and sustaining substance as necessary.

The existence of the human soul is not necessary in itself, not even the existence of my own soul, which I know experimentally. That is why I can think the possibility of my nonexistence. But, given the actuality of my operation (my thought, for example) known in internal perception or experience, then the existence of the soul is necessary. This is what has been called a conditioned necessity (*necessitas ex suppositione*, or, *in sensu composito*). This is the meaning of *De veritate*, q. 10, a. 12, ad 7:

To think something as nonexistent can be understood in two ways. In one way, when these two are the object of our apprehension together; and in this way it is not impossible to think oneself as nonexistent, just as one can think that at one time he was not. . . . In the other way, as when assent is given to such an apprehension; and thus no one can think of himself as nonexistent with the assent of the mind; for in the fact that one thinks anything, he perceives that he exists. (*Cogitari aliquid non esse, potest intelligi dupliciter. Uno*

modo, ut haec duo simul in apprehensione cadant; et sic nihil prohibet quod quis cogitat se non esse, sicut cogitat se aliquando non fuisse. . . . Alio modo ita quod huic apprehensioni assensus adhibeatur; et sic nullus potest cogitare se non esse cum assensu; in hoc enim quod cogitat aliquid, percipit se esse.)

Since we see a necessity this "I think, therefore I am" is a veritable act of understanding; the intuition of the necessity or of the intelligibility is always the motive of the judgment, the affirmation of existence. In consequence we must say that the "I" (*ego*) which we know and affirm in this judgment is not a phenomenal "I"; we here reach and affirm the noumenal "I," which has a real existence exactly as it is known.

This intuition of a necessary connection has a property which makes it differ from that in preceding cases; this is the meaning of "experiencing" (*experiri*). For this case involves an intuition of a *singular* necessary relation, a direct view which does not suppose a reflection on the phantasm and an application of a universal to an individual case. This is not in contradiction with the former expositions of St. Thomas. The former expositions concerned a necessary connection in the structure of a material object; here there is question for the intellect of the immaterial structure of our soul; and this spiritual structure can be known directly even though it is singular. That is why when direct knowledge of a singular nexus was denied above, the word "material" was ordinarily added to the term "nexus." Let us read only one text explaining this (*Sum. theol.*, I, q. 86, a. 1, ad 3):

Intelligibility is incompatible with the singular not as such but as material, for nothing can be understood otherwise than immaterially. Therefore if there can be an immaterial singular such as the intellect, there is no reason why it should not be intelligible. (Singular non repugnat intelligi, in quantum est singulare, sed in quantum est materiale; quia nihil intelligitur nisi immaterialiter. Et ideo si sit aliquid singulare et immateriale, sicut est intellectus, hoc non repugnat intelligi.)

For this reason, St. Thomas completely concedes the thesis of the objection, "Our intellect understands itself," and that not indirectly, unlike the way in which it understands material things.³ God and the angels know directly even the material singular thing. God, by reason of His knowledge which is the cause of things (*scientia quae est causa rerum*), as cause of the matter, knows this latter in its singularity; and the angels receive their ideas from God. Man, on the other hand, has to receive his knowledge from material things themselves, and because this is done by

abstraction from matter and material conditions, the human mind cannot directly know matter. For this reason man does not know directly the singularity of material things, but only by means of a reflection on the phantasm.

Man, therefore, can know intellectually his own soul by a simple perception or experience; and the same is true with regard to what pertains to the soul, as we learn from *Summa theologiae*, I-II, q. 112, a. 5, ad 1:

Those things which are in the soul by their physical reality are known through experimental knowledge; in so far as through his acts man has experience of inward principles. Thus when we wish, we perceive that we have a will; and when we exercise the functions of life, we observe that there is life in us. (*Illa quae sunt per essentiam sui in anima, cognoscuntur experimentaliter cognitione, in quantum homo experitur per actus principia intrinseca; sicut voluntatem percipimus volendo, et vitam in operibus vitae.*)

This knowledge involves the intuition of the necessity of the connection affirmed by the judgment. Taking its origin into account, we can express the principle thus, "I who am understanding am necessarily actually existing." Since the principle affirms a necessary nexus in a multipliable subject (man, or his intellect), it easily becomes universal, "Whoever is understanding is an actually existing being." Again we can express the priority of nature of the existence of the substance in relation to that of the operation. Then we have a formula like this, "Understanding supposes existence" (*intelligere sequitur esse*): This formula immediately calls to mind another more general one which affirms a connection that is not only *per se* but also *primo*, "Operation presupposes existence" (*agere sequitur esse*)—"operation," any operation and not merely an act of understanding. In a text taken from St. Thomas's treatment of the soul's knowledge of itself we find the general formula (*Contra gentiles*, III, 46):

Our mind knows itself through itself inasmuch as it knows that it is; for by the very fact that it perceives itself acting, it perceives itself existing. (*Mens nostra per seipsam novit seipsam in quantum de se cognoscit quod est. Ex hoc enim quod percipit se agere, percipit se esse.*)

This more general thesis can itself be known and affirmed by means of this simple reflection. It is the result of an "experiencing." However, it can be affirmed, and rightly so, not only of immanent actions but also of transient actions, not only of operation (*operari*) in the strict sense of the word, but also of action (*agere*) in general and of doing or constructing

(*facere*). And then the primary meaning of this adage is this, that existence always precedes action in nature and sometimes also in time. Read, for example, *Summa theologiae*, III, q. 34, a. 2, ad 1:

Existence precedes action by nature, but not in time; but as soon as the agent has perfect existence it begins to act unless it is hindered. (*Esse est prius natura quam agere; non tamen est prius tempore, sed, simul cum agens habet esse perfectum, incipit agere, nisi sit aliquid impediens.*)

The well-known thesis which says that "existence" is the "first act" and "operation" is the "second act" does not mean anything else.

However, the adage "Operation presupposes existence" also has another meaning which is a consequence and a narrower determination of the first meaning. For it also means that the mode of operating follows the mode of existing.⁴ It is known that St. Thomas often makes use of this principle. But this more specific principle is not known by means of a "perception" alone; an application of the principle of intelligibility or of causality is needed.

4. THE POSITION OF DESCARTES AND THAT OF ST. THOMAS

It is clear, then, that St. Thomas fully recognizes the validity of Descartes' "*cogito ergo sum*," though that formula does not appear in his works. He admits the truth of the adage both for what it says directly (*in recto*) and for what it says indirectly (*in sensu obliquo*). According to St. Thomas, this truth is discovered by a reflection of the intellect perceiving the existence of the operation and through this existence that of the subject, and also the order and the necessity of the connection between the two. But does the principle have the same meaning for the two philosophers? We must make a distinction: as regards the content, the structure, and the genesis, we can say that, fundamentally and substantially, but not in all details, they are in agreement. As regards the place which the principle holds in the theory of human knowledge, and of philosophy in general, there is a certain accord, but also a great difference—a difference, however, which need not be exaggerated, for Descartes is quite close to St. Thomas.

In another work of ours⁵ we have written at some length on the meaning that the dictum has, according to our opinion, in Descartes; by referring the reader to that article we can limit ourselves here to a few pages. We believe that we have established that, in Descartes' thought, the prin-

ciple is not a reasoning process or a résumé of a syllogism whose suppressed major would be the universal principle, "Whoever thinks, exists." Hence his protest, against those who attribute this thought to him, in the *Secundae Responsiones* (Adam-Tannery, VII, 140, 18-141, 2):

When we perceive ourselves as thinking things, this is a primary knowledge which is not concluded from a syllogism; neither when one says, "I think, therefore I am or exist," does he deduce existence from thought by means of a syllogism, but he only acknowledges something known of itself by a simple intuition of the mind, as is clear from this, that if he deduced it by way of a syllogism he would first have to know this major, "Whatever thinks, is or exists." (Cum autem advertimus nos esse res cogitantes, prima quaedam notio est, quae ex nullo syllogismo concluditur; neque etiam cum quis dicit, "ego cogito, ergo sum, sive existo," existentiam ex cogitatione per syllogismum deducit, sed tanquam rem per se notam simplici mentis intuitu agnoscit, ut patet ex eo quod, si eam per syllogismum deduceret, novisse prius debuisset istam majorem, "illud omne, quod cogitat, est sive existit.")

The existence of self is known, then, in the actuality of a thought. It is known *per se*. It is not deduced from a universal truth but is known by a simple intuition. But Descartes further says that this supposed major can only be known in the concrete and singular case. This is the exact opposite of what was attributed to him. For he continues:

Now indeed he rather learns this from the fact, which he experiences in himself, that it is impossible for him to think unless he exist. (atqui profecto ipsam potius discit, ex eo quod apud se experiatur, fieri non posse ut cogitet, nisi existat.)

These words are extremely important. The universal principle, "Whoever thinks, exists" is only known by reason of (*ex*) or from the singular case. It also contains other remarkable similarities with the Thomist doctrine. To begin with, the operation is, for Descartes also, an "experiencing." This experience attains the order of the connection: in the logical order the knowledge of the thought is prior, but in the ontological order the existence of the subject (the self) has priority. Finally, this experience attains also the necessity of the nexus, for he says, "It is impossible for him to think unless he exist." And it is only by reason of the necessity of this connection that one sees the universal truth. But an even more perfect resemblance is had, for Descartes continues:

For such is the nature of our mind that it forms general propositions from the knowledge of particulars. (Ea enim est natura nostrae mentis, ut generales propositiones ex particularium cognitione efformet.)

The universal proposition, "Whoever thinks, exists," is seen in the singular realization of its nexus which finds expression in the "I think, therefore I am." This does not happen because I perceive the singular nexus in myself and in you and in others; no, I perceive it only in my own interior life, and there a single experience is sufficient, on condition that we reflect upon it (*advertimus*). If in so reflecting I see the necessary connection, I see the universal proposition. And, according to Descartes, this method is universally valid, for "such is the nature of our mind." In a moment we shall see that in fact he applies this method elsewhere. He reproaches Gassendi with being unable to understand anything because he holds the opposite doctrine. All this is in conformity with the Thomist theses we have seen. In dealing with a "proper object," we see the necessary and, hence, the universal in a single concrete and specific case. We see this by means of a formal abstraction, that is to say, by a simple intuition of the formal element, and hence the necessary and relevant element, in an objective structure which is concrete and rich in intelligible forms. After this the noetic nature of the mind is seen, and in the same way, that is, in the nature of the concrete and specific act.

The Cartesian "I think, therefore I am" is, then, a singular judgment, a particular case of the universal judgment "Whoever thinks, exists." It is not strange that Descartes uses, besides the rational proposition, "*cogito, ergo sum*," also the singular categorical form, and that he affirms this latter as a necessary judgment, and hence a *per se* judgment. The "therefore" (*ergo*) of his famous principle is thus an expression of the necessity of the nexus and not of the syllogistic character of its origin. Above we saw a categorical formulation of the principle, "It is true that you, who are doubting, exist," and this truth is there described as indubitable. But even the very first formula published by Descartes had this form. In the *Discours de la Méthode* (A. & T., VI, 32, 17), Descartes describes the result of his reflection on his thought by saying:

It had to be of necessity that I, who thought it, was something. (Il fallait nécessairement, que moi, qui le pensais, fusse quelque chose.)

This categorical proposition is the first result of his reflection. It is only afterwards that this is summed up by the words, "This truth, 'I think, therefore I am.'"

The great discovery which Descartes made by this reflection was not the existence of his thought, nor even of his own existence. It was above all the discovery of the *necessity* of their relationship ("it had to be of neces-

sity").⁶ And that is why the "self" and the "existence" which are so discovered are noumenal. The reason for his preference of the rational proposition, "I think, therefore I am," over the categorical proposition seems to be this, that the first formula suggests better the origin and the development of his thought; and also that as a catchword, it is more effective than the second.

The resemblance to St. Thomas's doctrine goes even further. On the following page of his discourse, after the discovery of his first principle, Descartes would have us derive his first noetic principle from this first intuition of the necessity of a truth. Similarly, St. Thomas refers us to the first intellective intuitions in an objective structure of our proper object, that we might discover there the principles of "truth itself" or of the "intellect itself." The knowledge of the nature of the act was an intuition of the nature of the intellection, which in turn supposed a necessary connection in the object. The result was a judgment affirming the *esse*, and reflection on this result led to the double principle of intelligibility. This is the path St. Thomas takes: from the knowledge of the object to the knowledge of the noetic nature of the act, and from this to the noetic nature of the faculty. Descartes follows the same path. With this difference, however, that his starting point, his first principle, does not concern the structure of a material object, which according to St. Thomas is the mind's proper object, but the "I think, therefore I am." But for the rest the sequence of Descartes' ideas is the same. His formula of the principle of intelligibility, that is, his criterion of clear and distinct ideas, does not seem to us too happy; the formula of Parmenides is better. But we believe that Descartes' purpose was the same as Parmenides' and in itself was a good one.

But this cannot be said about all his applications. Above (Chap. VII, Sect. 7) we criticized Descartes for applying in an incorrect manner the second part of the principle, "being is intelligible"; but it was not so much an inexact conception of the principle as a defective analysis of the facts. He can justly be criticized on more important points, especially on the score that he required the prior knowledge of God's existence to guarantee the application of his principle. We do not believe that his thought contains the vicious circle which is attributed to him, but we consider erroneous the way in which he uses the principle to prove the existence of the external world. In this there is a big difference which separates his thought from St. Thomas's.

Naturally, there is also the difference that, for Descartes, the "I think,

therefore I am," is the first principle of all philosophy. In the eyes of St. Thomas, the first principles, not only of philosophy but of all human intellectual knowledge, are the principles which have to do with the proper object (*obiectum proprium*) of the human intelligence. But this difference can be lessened in accordance with the teaching of Descartes himself. Above he told us that the human intellect, by its nature, acquires its universal cognitions by the intuition of concrete cases. In fact he defends this theory elsewhere, especially in regard to the first mathematical truths, truths which have to do with St. Thomas's "proper object." He argues sharply against Gassendi, who held the inverse theory and who tried to attribute it to Descartes. In his answer to the *Instances* of Gassendi (A. & T., IX, I, 205, 25), Descartes says:

But the greater error is that this author supposes that the knowledge of particular propositions must always be deduced from universal ones, following the order of syllogisms of dialectics; in this he shows that he knows little of the manner in which truth must be sought; for to find truth we must always begin with particular notions in order to arrive later at general ones, even though one may reciprocally, having found the general ones, deduce other particular ones from them. (Mais l'erreur qui est ici la plus considérable, est que cet auteur suppose que la connaissance des propositions particulières doit toujours être déduite des universelles, suivant l'ordre des syllogismes de la Dialectique; en quoi il montre savoir bien peu de quelle façon la vérité se doit chercher; car il est certain que, pour la trouver, on doit toujours commencer par les notions particulières, pour venir après aux générales, bienqu'on puisse aussi réciproquement, ayant trouvé les générales, en déduire d'autres particulières.)

He immediately applies this doctrine to the first mathematical truths:

Thus, when we teach a child the elements of geometry we cannot make him understand in general that if equals are taken from equals the remainders are equal, nor that the whole is greater than its parts, unless we show him particular cases. (Ainsi, quand on enseigne à un enfant les éléments de la géométrie, on ne lui fera point entendre en général que lorsque de deux quantités égales on ôte des parties égales, les restes demeurent égaux, ou que le tout est plus grand que ses parties, si on ne lui en montre des cas particuliers.)

Undoubtedly, St. Thomas would have expressed all this more exactly; he would have said that the singular is known directly by sense alone; he would have attributed the intellectual knowledge to abstraction; he would have recognized the *direct* understanding of the singular only in the case

of the "I think, therefore I am." But the meaning of Descartes' reply is entirely in accord with the thought of St. Thomas.

The first mathematical intuitions are at least as clear as the "I think, therefore I am," and they in no way depend on this latter. They are judged and formulated even before the "I think, therefore I am." It is true that the mathematical intuition does not lead, as that of the "I think . . ." to a judgment on actual existence; but it attains, nevertheless, immediately and independently, the necessary objective structure as being (*cui competit esse*). These judgments, then, have an existential element. Descartes unhesitatingly recognizes this, and he uses this fact in his reasoning which is supposed to prove the existence of the external world. In the beginning of the sixth *Méditation*, it forms his starting point, as a thing immediately evident in consequence of his noetic principle. We read (A. & T., VII, 71):

It remains for me to examine whether material things exist. And indeed at least I know that inasmuch as they are the object of pure mathematics they can exist, since I clearly and distinctly perceive them. (*Reliquum est ut examinem an res materiales existant. Et quidem iam ad minimum scio illas, quatenus sunt purae Matheseos obiectum posse existere, quandoquidem ipsasclare et distincte percipio.*)

The "I clearly and distinctly perceive" as a foundation of the knowledge of these objects as possible beings is nothing else but the principle of intelligibility of St. Thomas. Even here Descartes is closer to St. Thomas than is generally supposed. But the transition from the knowledge of these things as "being" to the discovery of their actual existence is done in Descartes in a way entirely different from St. Thomas and one which would not be acceptable to anyone. In Chapter X we tried to show how this transition is made in St. Thomas. If we mistake not, St. Thomas appeals, at least for the keystone of his analysis, to the reflection which attains the existence, hence the actuality, of human operations; not indeed the "I think, therefore I am," but to the actuality of a human action (*facientes cognoscunt*). But the kind of reflection is the same.

We can then, undoubtedly, conclude that Descartes rediscovered a good part of the conclusions of St. Thomas, but not all; but we must also conclude that he went astray in his further analysis.

CHAPTER XIII

Résumé and Conclusion

IT HAS BEEN SAID that St. Thomas did not have a basic theory of human knowledge, or that he sketched at most only a vague outline of it, professing, for the most part, a naïve realism. If these pages have proved anything, it is that such an opinion is in flagrant contradiction to the facts. For St. Thomas's doctrine on the judgment contains a developed theory of knowledge which is not only a penetrating phenomenological description, but also a critical analysis, the purpose of which is the justification of the human judgment. His theory does not neglect any important details. In fact, on certain points he is more detailed than many moderns. His theory carefully distinguishes the contributions of the senses and of the intellect and determines exactly the role of the two faculties. He admits without hesitation the dependence of the human mind on sense data, but recognizes at the same time the relative independence of the mind. He determines for the different classes of judgments a diversity between the contributions of the two faculties and between the different degrees of dependence and independence. He does all this with an exactitude and justification not attained by any other theory of human knowledge. Perhaps a summary résumé of the result of our researches will clarify our contention.

The human mind depends on sense data not only for the first *concepts* but also, and *necessarily*, for the connection between the concepts or between their contents. The nexus itself is received from the senses. It belongs to the class of things characterized as sense data (*accepta per sensum* or *a sensu*). The knowledge of this nexus precedes the judgment properly so called, that is, the judgment of the intellect.

In this theory, the unique task of the judgment (the second operation of the human mind) is to affirm or deny these data, this objective structure, to pronounce the "So it is" or "So it is not." This is its unique and proper task: "The judgment is concerned with existence." Thus every judgment, even the judgment on a relation of essence or on a nature considered absolutely, has of its nature an existential component.

The transition from the apprehension to the judgment, from the representation to the "So it is," is prepared in the caesura between the two operations; it is the fruit of an activity of the mind which consists in a "return" or a "reflection." It is this latter which puts us in a position to judge and which for every judgment leads to the recognition of the *esse* or of the *non-esse*. This reflection, starting from the content and hence from the object of the apprehension, tends, even for the very first judgments, to attain the noetic nature of the apprehension or intellective representation which precedes the judgment. When it succeeds, the human mind recognizes its own operation as an "understanding," and then follows the judgment, "So it is." When it does not succeed, then a certain judgment does not follow. When on the contrary it perceives a positive unintelligibility, then the judgment says, "It is not so." This operation intuitively contains its own justification; intuitively, by reason of an intuition of its object; and the *esse* with which it is concerned is the *esse* of realism. Realism, in fact, can have no other meaning; it could even be defined by means of this actually experienced intuition.

These very first judgments concerning objective structures of the proper object of man's intellect spring from the intuition of a necessity, that is, of an intelligibility of a nexus received from the senses. But the *motive* of the affirmation is completely independent of the fact that the whole datum, including the nexus, comes from the senses. The motive is purely intellectual and arises uniquely from the intuition of what is found in the intellectual representation. But the representation is concrete, that is, it is the apprehension of a specifically determined objective structure. When St. Thomas says that we know the nature of the act by reason of the object, this does not mean that we must consider the universal concepts of "act" and "object," but that we must represent a determined proper object and from the characteristics of the apprehended object as apprehended come to know the nature of this determined act of apprehending. We shall never understand St. Thomas if, in reconstructing his theory, we limit ourselves to an idea which corresponds to the universal expression, "intellective apprehension." We shall understand him even less if we limit ourselves to the universal and abstract idea, "the nature of the intellect."

Intuitive knowledge of this abstract nature of the intellect can only follow (*natura post*) these first intuitions of the intelligibility of a determined object and of the nature of *this* act (*natura huius actus*). These first intuitions are only secondarily accompanied by the knowledge of, and a virtual judgment on, the nature of the intellect. This latter nature

is the explicit object of another reflection, which can follow after the first and which, when put in operation, can lead to judgments on the general noetic nature of the intellect. These judgments have as their object the relations of the activity of the intellect to being and the relations of being to the activity of the intellect. This is the beginning of the theory of knowledge and also of metaphysics. But it is not the beginning of justified knowledge itself, since we must possess justified knowledge before we formulate a theory about it.

Absolutely none of these judgments is dependent on the senses, except in so far as the intellective apprehension must abstract the relations of the proper object from sense data. But the discovery of being in these relations and their terms is a purely intellectual operation and does not depend on the senses; that is to say, the fact that these first apprehensions (things apprehended) are gotten from the senses is not a motive for their affirmation nor even a part of the motive. The motive is uniquely the intelligibility of the relation or nexus in the object present in the intellect, and the subsequent intuition of the nature of the intellect.

In this way the human mind can begin the construction of the sciences such as mathematics, logic, the theory of intellectual knowledge, and metaphysics. To start this construction the human mind need not even know that its representations depend upon the senses; *a fortiori* it is not necessary that it have formed a judgment on the value of the senses as cognoscitive faculties. Still less is it necessary that the mind know something of their mode of acting. In all these points relative to these judgments and their justifications, the mind is independent of sense cognition.

Clearly, reflection will extend also to sense knowledge and to the sense faculties. Then the mind easily learns the fact of its dependence on the senses and the fact that the objects which it initially judges really come from the senses. Next it comes to know its faculty for formal abstraction in regard to certain objects; it sees intellectually the first necessary and intelligible relations in the midst of all the complications of sense data. In this manner it highlights the forms which are connected by a formal relation and distinguishes these formal connections from the purely material connections present in the sensible data. This is what constitutes the big difference between the *per se* judgments and the others which are not *per se*, or at least are not known as such.

It is these latter judgments on a factual or purely material connection which require, as motive, the testimony of the senses; which require, therefore, in order to be justified, the knowledge of the nature of perception

and of the senses. Then the mind first finds the difference between impressions which serve only for practical purposes, and the others which form the starting point for the construction of intellectual knowledge. The mind recognizes these latter easily, by a discovery in them of a connection which we have called a lateral connection, both in the subject and in the predicate. This is what is demanded by St. Thomas of all intellectual cognition before any judgment can take place. But he demands more for a judgment of pure perception; it must be preceded by a reflection which finds the value of perception and of the sense faculties justified. Only then, after a perception which finds in one subject the meeting of two determinations, each intelligible in itself, can the judgment follow, "Thus it is actually."

In the very simple and yet decisive cases, this reflection takes place quite easily. For there are perceptions of very simple and clear objects, such as multitudes to be added and numbered, simple geometric constructions which suppose no special scientific knowledge. Here the perceptions are conjoined to a construction manifesting necessary aspects. These perceptions co-operate in the construction; for example, sight, by designating a point, divides an extended line, or by successively ranging over unities, co-operates in the counting process. These perceptions lead to results the necessity of which is intellectually seen. In all this we learn to justify the sense perceptions, and hence the faculty of perception. Reflection on sense operations easily teaches us the difference between the imagination and the external senses, for the activity of the former is, within certain limits, under our control, while that of the others is not. This prepares for the knowledge that the actuality of the object, and of the object such as it is represented, corresponds to operations of the external senses. It prepares us for this knowledge, but it is not decisive. We discover the decisive factor in an analysis of the operations effecting this construction. It consists in the fact that these operations necessarily presuppose the actuality of an object having such a nature as is perceived by the senses. This complex is intelligible in all its elements. Hence perception, which purports to attain actual reality as it is, is justified in its claim. The perception which is a motive of contingent judgments is found to be justified in these cases.

Here then is the characteristic feature of St. Thomas's doctrine on the judgment: it makes clear that the judgments of man, in his natural attitude, in his daily life and in his scientific life, prior to any *theory* of knowledge and before any philosophizing, are critically justified. For the

theory, without doubt philosophical, which makes all this clear and shows that the mind, in so proceeding, knows that it acts correctly, is an analysis and a description of the activity of the human mind in its natural attitude, such as it is in man's daily life, and when it is working in the construction of the sciences. In truth, this analysis discloses many reflections and, as results of these reflections, a whole series of intellectual intuitions which must precede the judgment, at least the judgment of perception. This analysis is itself laborious, but it discovers that the human mind is led by these reflections quite naturally, and that their *exercise* is very easy. Of course, not all of these intuitions are expressly affirmed; even less are they formulated as propositions. This is done only in a philosophical analysis. But these intuitions are present and guide the natural thinking process. They are present before the judgment of perception. They both determine it and justify it. The human mind is, by nature and of itself, prior to all philosophy, critical and not naïve.

This is an important result. There are philosophers constructing theories of knowledge who want to prove the value of human knowledge, of science and philosophy, and who think they are successful. I mean they wish to propose theories of human knowledge which take their inspiration from realism. But they think that such a result is found, and can be found, only by a method entirely different from the one which has guided man, even scientific man, for centuries, and the one which he still chooses today if he wants to advance in knowledge without philosophic preoccupations. If their opinion is true, what have they proved? They merely prove, if they have proved anything, that results obtained by the "naïve" man are in fact good, and that he can continue on his way. But are the human intellect and human science truly justified by their theories? Not at all. For then it is only by a happy chance that man's method of work, his naïve construction of science, has arrived at true results. The guarantee for this truth must be found by an entirely different method. Or perhaps man's knowing is only an instinctive process; for instinct leads blindly, without intuition, to good results. But what holds for instinct is not a sufficient explanation for the construction of the sciences. For man began these sciences and continues to work at their construction in the certain conviction that he found and still finds these results, not by chance, but guided rightly and surely by his intellectual intuition. The theories of knowledge we have just referred to make this conviction an illusion. They do not give a solid foundation to human knowledge, but rather destroy it.

On the other hand, St. Thomas's theory of the judgment gives an ex-

planation for this conviction of the human mind. The mind, in constructing science which it considers as justified, is guided by a critical insight which can be put to the test by a philosophical analysis bringing to light all the elements of this insight.

In examining St. Thomas's doctrine on the judgment, we have found that he had it before his mind in his very first works. There he describes it in details which he does not have to modify later. The reason for this is clear. He drew this doctrine from the works of Aristotle and with his own genius developed it and gave it clear presentation. St. Thomas did more: he proposed this doctrine as the true doctrine of the judgment and the true theory of knowledge. It seems to us that we should follow St. Thomas in this.

This is not the only part of philosophy in which a return seems to be in order. It has often been said that the philosophy of St. Thomas is no longer up to date on two points, namely, on the philosophy of nature and on the theory of knowledge. We think that on these two points the philosophy of St. Thomas is still perfectly valid and quite conducive to further progress.

Appendix

APPENDIX

The Meaning of a Text of St. Thomas:

De veritate, Q. 1, A. 9

by

CHARLES BOYER, S.J.

(from the *Gregorianum* V, 424-43)

ONE HARDLY EVER READS a study of the problems of knowledge written by a Scholastic philosopher without finding a reference made to this text of St. Thomas:

Truth is known by the intellect inasmuch as the intellect reflects upon its act; not only inasmuch as it knows its act, but inasmuch as it knows the relationship [proportion] of its act to the thing, which relationship cannot be known unless the nature of the act be [first] known; and this cannot be known unless [at the same time] there is known the nature of the active principle, which is the intellect itself, whose nature it is to be conformed to things; hence the intellect knows truth inasmuch as it reflects upon itself.¹ (*Cognoscitur autem [veritas] ab intellectu secundum quod intellectus reflectitur supra actum suum, non solum secundum quod cognoscit actum suum, sed secundum quod cognoscit proportionem eius ad rem, quod quidem cognosci non potest nisi cognita natura ipsius actus; quae cognosci non potest nisi cognoscatur natura principii activi, quod est ipse intellectus, in cuius natura est ut rebus conformetur; unde secundum hoc cognoscit veritatem intellectus quod supra seipsum reflectitur.*)

For anyone who wants to understand how St. Thomas would demonstrate today the validity of our certitudes, this text, with its deliberate precision and with its manifest intention of giving an answer to the final why, seems to contain most valuable insights and to express in brief a definitive criteriology.² It is interpreted, however, in widely different ways. The theories which it is supposed to sum up and confirm often differ greatly. Hence we have judged it useful to try to determine its true mean-

ing by studying the text part by part, by comparing the parts with analogous passages, and by clarifying them by means of the doctrines which are implied.

In the article which contains the text, St. Thomas wants to explain how truth is found in the intellect and in the sense. He says that truth exists in both faculties. It is the result both of the act of the sense and of the intellect. Not only the intellect, but also the sense judges of the thing as it is; and by reason of that judgment they have truth in themselves. But they do not have it in the same way. In the intellect, the truth is known by the faculty in which it resides; it cannot be thus known by the senses. How is truth known by the intellect? It is to make this understood that St. Thomas writes:

Truth is known by the intellect inasmuch as the intellect reflects upon its act; not only inasmuch as it knows its act, but inasmuch as it knows the relationship of its act to the thing, which relationship cannot be known unless the nature of the act be [first] known; and this cannot be known unless there is known the nature of the active principle, which is the intellect itself, whose nature it is to be conformed to things; hence the intellect knows truth inasmuch as it reflects upon itself.

Thus the intellect reflects upon its act, perceives its proper nature, and so knows truth. That such is the general thought expressed by the text is unquestionable. On the other hand, questions arise and opinions multiply, if one goes into detail and if one wants to determine the precise meaning of each term.

It is important to understand first the kind of reflection of which St. Thomas speaks. Is there question here of a second judgment which is passed on a prior judgment in order to declare its validity? If so, the intellect, to begin with, would have given its complete assent; it would have affirmed or it would have denied. Then, wanting to know whether its first act was well founded, it would consider the nature, the conditions, and the character of the first act. In the event that this examination gave entire satisfaction, the intellect would proclaim the rectitude of its first judgment, it would declare it conformed to what is, and thus it would know truth. It is in this sense that Cardinal Mercier, among others, seems to understand the thought of St. Thomas. The illustrious author sees there the program of work which he accomplished in his *Critériologie*, and

which consists in reflecting on spontaneous assents to verify their objectivity.³ Indeed, does not the word *reflection* bring to mind a series of acts verifying at leisure a proposition already expressed, a judgment already passed?

Nevertheless, it seems certain to us that this interpretation is wrong. In this passage, St. Thomas is not thinking of a deliberate philosophic reflection, a controlled operation or an examination. If we are not mistaken, he describes simply, but with profundity of analysis, the act of judgment itself, the second operation of the mind. There is question here of the judgment as such, and hence of every judgment, whether it be direct or reflex, whether it be formed by a man without culture or be pronounced by a philosopher, whether it spring spontaneously from the intellect, or terminate a long effort of thought. The judgment is essentially an act of reflection, a return of the intellect on itself.

To begin with, let it be noticed how St. Thomas, in the same article, defines reflection. He makes it consist, not in the more or less prolonged consideration of a truth or of an act, but in the knowledge about himself that a subject gains when knowing something other than himself. The subject has begun to reflect if he knows his own act, the act by means of which, in going toward the object to attain it, he has so to speak gone out of himself. If he knows his own act he has returned on himself, though the return is incomplete. The animal which senses that it senses has already in some measure reflected upon itself. But the complete return takes place when he who knows a thing placed outside of himself, comes to know not only the act by which he knows the thing, but also himself, the principle of the act, in his proper nature. Only beings endowed with intelligence enjoy this faculty of perfect reflection on themselves. They alone, in the strict sense of the word, reflect. Without doubt, they do not all do it in the same way. Each intellective being reflects in a manner proportional to his degree of immanent activity and his simplicity. In God, one single act, the act by which He is, the pure act which He is, contains the knowledge of the divine essence and the knowledge of objects distinct from the divine essence. For the angels, the act by which they apprehend another, although not identified with their being, is, nevertheless, at the same time, knowledge of their own nature. In man, the complexity is greater. To attain himself, different in this from the angels, he has need to attain something else; but this act is not yet knowledge of himself; he

has to know by another act that first act in order to know himself. But finally he succeeds in knowing himself in knowing something else. He, therefore, accomplishes all that is essential to reflection.

Now it is in the judgment that man accomplishes this reflection. The judgment is this reflection in act. This is the conception on which the reasoning of St. Thomas in this passage is based. Indeed, what does he want to prove if not that truth is found in the intellect by reason of something which the sense cannot have? Everything he says tends to declare and establish this privilege of the intellect. But it is known that according to St. Thomas the act in which the intellect exercises this prerogative is the judgment. In the judgment, then, must be found the property by reason of which the intellect transcends the sense. Reflection is this property and hence reflection is in the judgment. It takes place by the fact that one judges. The judgment is this reflection in exercise.

This general argument could suffice; but by studying the details of the text, the argument is confirmed to the point of making it truly irresistible. St. Thomas tells us that the reflection, giving us knowledge of truth, consists in this, that the intellect knows not only its act, but also the relationship of its act to the thing known, that is to say, obviously, the conformity of this act with the thing: *non solum secundum quod cognoscit actum suum, sed secundum quod cognoscit proportionem eius ad rem*. Consult the passages where Aquinas, following the Stagirite, shows that truth is found properly in the judgment alone. What reason is given in support of this thesis? It is the same reason that we read above: in the judgment the mind knows the conformity of its act with the thing known. The *Summa* puts it thus:

Although the sense of sight has a similitude of the visible thing, yet the sense of sight does not know the relation which exists between the thing seen and what it apprehends of it. The intellect, however, can know its conformity to the intelligible; but it does not apprehend this inasmuch as it perceives the simple quiddity of a thing. But when it judges that the thing is such as the form which it apprehends of the thing, then first it knows and says something true. And this it does by composing and dividing.⁴

Is it not clear that for St. Thomas, to show, as he does in *De veritate*, that the intellect knows truth by reflection, and to show, as in the *Summa*, that the intellect knows truth by the judgment, is to show one and the same thing? More briefly, and without as yet going beyond these two

texts, according to *De veritate*: "Truth is in the intellect because it is known by the intellect" (*sicut cognita per intellectum*); in the *Summa*, truth is in the judgment because it is known in the judgment "as the known in the knower" (*ut cognitum in cognoscente*). How can one say that there is question, in one and the other passage, of two things? But if there is question of only one thing, then it follows that the reflection described in the *De veritate* is the one which takes place in every judgment. In truth the article in the *Summa* cannot be understood as dealing with reflex judgments only. No interpreter has ever attempted it, for it is too clear that truth is found also in direct judgments. Besides, the text itself declares that there is question of every judgment (*in omni propositione*).

In the commentary on the *Metaphysics*⁵ St. Thomas again proves that truth resides in the judgment alone. Since the demonstration he there gives is identical with the one of the *Summa* it has the same relation as the latter to the article of the *De veritate*. However, it furnishes us with a new light. To express how, in the act of judging, truth is known, the term "reflection" itself is there used, the "*reflectitur*" which in the text of the *De veritate* has thrown so many interpreters off the track: *in hac sola secunda operatione intellectus est veritas et falsitas, secundum quam non solum habet similitudinem rei intellectae, sed etiam super ipsam similitudinem reflectitur*. Here, no equivocation is possible. The reflection of which there is question here is that which has place in every judgment and which constitutes every judgment; and even if we can easily extend to reflex judgments the import of this passage, still there is question mainly of direct judgments, such as: "Man is a rational animal." Hence, we must of necessity admit that according to St. Thomas, on the one hand the intellect possesses truth in virtue of an act of reflection, and on the other hand, that this act of reflection constitutes the judgment.

We say that this reflection constitutes the judgment. By reason of this we can exclude an interpretation already mentioned and refuted.⁶ The thought might well occur that we should indeed recognize that an act of reflection is implied in every act of judging, but that this reflection should be understood as a simple adjunct of this act, an epiphenomenon, a kind of attention which, without constituting a new judgment, would nevertheless be distinct from the judgment to which it is directed. The intellect would know truth inasmuch as it would see the conformity of the judg-

ment itself, completely formed, with the thing known. In consequence, the judgment would exist independently of this perception (of its truth) and as the object of this perception.

To begin with, we could bring against this way of understanding the doctrine of St. Thomas, both in the *De veritate* and in the parallel passages, the fact that it is impossible to judge a judgment already constituted, except by a new judgment. If this new judgment were required for the existence of truth in us, it must mean that the first judgment did not yet contain it. No direct judgment would contain it. Who would want to attribute to St. Thomas such an evident error? If truth is not found in the first direct judgment, it will not be found in any judgment. After all, the reflex judgment is only reflex relatively to the first judgment, which it takes as its object; in itself, it is necessarily direct. It would have to be itself judged in turn. Truth would ever escape our grasp.

But, without any need of deduction, the text of St. Thomas suffices of itself, and designates with precision the act on which the intellect must reflect in order to know truth. This act is not a judgment properly so called, with affirmation or negation, but a simple apprehension, the pure representation of an intelligible, in which nothing is yet affirmed or denied. The true judgment results from reflection on this first operation of the mind. It is worth while to bring out this point as clearly as possible.

In truth, to see it clearly, it suffices to study the comparison presented in the body of the article from the *De veritate* between the act of the intellect and the act of the sense. To describe the act of the intellect which precedes the reflection, St. Thomas uses the same expressions he uses to describe the act of the sense. In the intellect and in the sense, he says, truth, that is, an exact resemblance of the thing known, is actualized by the acts of these faculties (*consequitur namque [veritas] intellectus operationem, secundum quod iudicium intellectus est de re secundum quod est. . . . Veritas est in sensu sicut consequens actum eius, dum scilicet iudicium sensus est de re, secundum quod est*). Now the act of the sense is certainly not a judgment properly so called. If it is called a judgment, it is certainly by simple analogy, to signify that it places in the sense a representation of the sensible object and for this reason the matter of a true judgment. The act of the intellect which corresponds to it, so much so that it is defined by the same formula, is then not a judgment in the proper sense, but the act by means of which the intellect has a representation of an intelligible as matter of a true judgment. This act is the simple apprehension. The intellect then manifests its superiority over the sense by

making a genuine judgment, something the sense cannot do. So understood, all the parts of the text fit together and become clear.

The same harmony and clarity are present if we now compare our text with parallel passages. The commentary on the *Metaphysics* is so explicit that it seems impossible to misunderstand it. There, two acts of the mind are studied in their differences and their relations. The first is the simple apprehension, the conception of a notion, the seizure of a non-complex. By reason of this act the mind comes into possession of a resemblance of the object, but it is still ignorant of the nature of its acquisition. The mind then places a second act by means of which it returns on this possessed resemblance in order to know it as such and to affirm it as such. This second act is the judgment. To judge, therefore, is to seize and affirm the conformity of a first apprehension with the thing known.

For when the intellect conceives what a mortal rational animal is, it has in itself a likeness of man; but not on that account does it know that it has this likeness, because it does not judge that man is a mortal rational animal: and this is why truth and falsity are found in this second operation of the intellect, by reason of which not only does the intellect have a likeness of the understood thing, but it reflects upon the likeness itself, knowing and judging it.⁷

In the *Summa*,⁸ the same idea is created by expressions which show perhaps still better the relation of the judgment to the simple apprehension.

But the intellect can know its own conformity with the intelligible thing; yet it does not apprehend it by knowing of a thing *what a thing is*. When, however, it judges that a thing corresponds to the form which it apprehends about that thing, then first it knows and expresses truth. This it does by composing and dividing; for in every proposition it either applies to, or removes from, the thing signified by the subject, some form signified by the predicate.

Can anything be more neatly put? If, for us, judging consists in declaring the agreement of a simple apprehension with a given thing, it evidently follows that judging is the apprehending of the conformity of a simple apprehension with the thing apprehended. We can find a formula which expressly says this. We learn in the *Contra gentiles* that the complex, or judgment, alone is true or false, because in it alone is expressed the relationship of the incomplex, or simple apprehension, with the thing, by the sign of composition or division:

... the complex which contains a correlation between the non-complex and the reality, expressed by composition and division.⁹

Does not the article of the *De veritate* become altogether clear if in reading it we keep in mind these words and this doctrine? It says:

Truth follows the operation of the intellect, inasmuch as the judgment of the intellect on the thing is conformed to the thing.

Is it not the act of simple apprehension that puts a likeness of the thing in the mind? And is not the judgment properly so called the act in which this likeness is recognized for what it is?

But truth is known by the intellect inasmuch as the intellect reflects on its act, not only inasmuch as it knows its act, but inasmuch as it knows the relationship of its act to the thing.

We know then that in the text under discussion St. Thomas describes the judgment as a return of the intellect on itself and that this return consists in knowing the conformity of the simple apprehension with its object. Let us go forward and try to understand how St. Thomas can pass from the knowledge of the simple apprehension to the knowledge of the essence itself of the soul. Let us state immediately that we can notice in these few lines three thoughts the importance of which anyone can see. To begin with, St. Thomas admits that to know truth the intellect must know its own nature; he then says that the intellect in fact knows its proper nature; and finally, he explains that this knowledge takes place in the act itself of judging.

He says twice that a faculty has to know its nature in order to know truth, and the reasoning of the whole article is based on this principle. What is the basic reason why the intellect knows truth? It is that it arrives at the knowledge of its own nature; without this (*nisi cognoscatur natura principii activi, quod est ipse intellectus*) it could be true without knowing it. And why, when you come down to it, does the sense, which is true, remain ignorant of its truth? The reason is that it cannot come to know its own nature (*non tamen cognoscit naturam suam*). This is the defect, and the consequence of it (*et per consequens*) is ignorance of truth. Hence St. Thomas recognizes as legitimate and makes his own the demand which the skeptics of all ages have made so insistently, and which Montaigne and Pascal formulated with so much force, when they demanded that they be enlightened on the nature of the intellect before trusting it.

But he never doubts that this demand can be satisfied. He knows that all legitimate demands are satisfied, that all required conditions are fulfilled, that all necessary means are furnished in order to know truth, since in fact we know it. In the passage we are considering, he does not seek to know whether truth is, but assured that it is, he wants to indicate where it is found. Truth is in the act wherein the nature of the intellect is understood. But this act is the judgment. This is what we have to understand.

St. Thomas establishes this position by degrees. To begin with, he states that in the judgment the intellect knows the conformity of its act with the object. One who does not keep in view this manifest intention of the whole article could easily interpret this in an undoubtedly insufficient way. He might think: Is not St. Thomas satisfied with observing that the judgment, by reason of the fact that it consists in the attribution or negation of a predicate (representing a conception of the mind) to a subject (representing something outside of the mind), expresses if true the conformity of the mind with things? Such an interpretation empties the text of all interest, and indeed of all demonstrative value. The whole tenor of the article is intended to teach that the conformity of the mind with things is not only expressed, as thought of in the judgment, but that it is known as such and in such wise that if it were not so known, the judgment could still perhaps be true, but it would not put the one who pronounces it in possession of the truth. When the judgment comes to exist under natural conditions, the intellect which produces it knows with certain knowledge the conformity of its act with the object (*non solum secundum quod cognoscit actum suum, sed secundum quod cognoscit proportionem eius ad rem*).

But how does the intellect acquire this certitude? Here the thought of St. Thomas advances in a direction which is really the only possible one, but which could seem to be false or at least very daring to a mind less enlightened and less sure of itself. He does not dream of comparing, on the one hand, the object and, on the other, the representation which the mind makes of it. This is the method which idealists sometimes attribute to the Scholastics. Such an attempt would clearly be destined to end in failure, since the mind could not return to the (exterior) object except by knowing it a second time by means of a representation just as interior as the first. St. Thomas does not look to the object. When the intellect turns to the object, it can know it; but in order to know that it knows it, the intellect must return to itself. It has to grasp the nature of its own act; failing to do this, the conformity of its act with its object would remain unknown: *quod quidem cognosci non potest nisi cognita natura ipsius actus*.¹⁰

"*Nisi cognita*"; the verb is in the past tense. The knowledge of the nature of the act is then prior to the knowledge of the conformity of the act with its object. This priority, however, does not imply priority in time, nor real multiplicity in the knowing act. It consists in a natural dependence of the knowledge of truth upon the knowledge of the apprehensive act. According to St. Thomas this discovery of truth would be impossible if there was question of the first operation of the intellect, which is a going forth out of one's self and a simple seizure of an object. But we are considering the movement of return which takes place in the second operation, the term of which is judgment. In the simple apprehension, man has an understanding of an object; he can even be aware of his act; he does not know that this act gives him understanding of an object. This is what remains to be learned. For this he needs a new act: *Alius est actus quo intellectus intelligit lapidem, et alius est actus quo intelligit se intelligere lapidem*.¹¹

The reason for this is that we cannot know our intellect as long as it is in potency, but only when it has its natural determination, that is, when it is in act.¹² But to be in act it has to be united to an intelligible object; and since it does not possess this object in itself (or of itself), it must receive it of necessity from without. In consequence, it is first in act by the knowledge of a thing other than itself. God and an angel, on the contrary, being intelligible in act, know themselves by nature, without the help of any further prior actuation.¹³ Nevertheless, the human mind having become intelligible by the act of apprehension, can now understand itself, and this by reason of the principle of its actuality, namely, its act. It attains to an understanding of its act. But this act is the knowledge of an object, it has a relationship of conformity with the object, it originates from a form which is that of the object, and is, so to speak, modeled after it. To know the nature of this act is then to know that it is such, and to know its relationship to the exterior thing.

We have here an explanation which is satisfying. It is not by continuing to "exteriorize" itself and by engaging outside of itself in a blind chase after the object, but it is by returning on itself, in "interiorizing" itself, that the mind, having once seized its prey, assures itself that it has seized it. For now, in this single reflection, it attains simultaneously its first act and the thing.¹⁴ It cannot be otherwise, since this first act is knowledge of the thing. What objections could skeptics raise against this position? If the human mind, by its first act, truly knows the object, and if, by reflecting on itself, it also knows that the nature of its act is to know the

object, does it not possess all the light it needs? Does not certitude consist in knowing that one knows? The judgment by its nature makes resplendent in us truth which is truly such, truth which is conscious of itself. One cannot refuse to recognize this fact without being forced into the unnatural position of suspecting the validity of an intuition in which the intellect grasps the nature of its own act.¹⁵

The act of the intellect is not exterior to the intellect. In knowing the nature of its act, the intellect knows its own proper nature, which is to be conformed to the real and to know it. (*Quae [natura actus] cognosci non potest nisi cognoscatur natura principii activi, quod est ipse intellectus, in cuius natura est ut rebus conformetur.*)

This is the final word of St. Thomas. The intellect judges itself, it knows what it can do, it sees what it is, it is transparent to itself. It knows itself as a power of knowing another, and when it knows that other it perceives itself knowing it. We have broken out of the vicious circle. If judgment has to be passed on the value of the intellect, then we have in fact such a judgment passed by a judge that intuitively penetrates its intimate nature.¹⁶

The meaning of this last part of the text of St. Thomas must be defended against two opposite interpretations. One of these makes the doctrine valueless; the other puts it into contradiction with the constant doctrine of the Angelic Doctor.

The knowledge of which St. Thomas here speaks would lose all its interest for us if it were to be understood as a conclusion arrived at by a process of reasoning. What is the intention of the article if not to establish that truth is found in the judgment because in the judgment we know that we know?¹⁷ Therefore, if, in order to know that one knows truth, it be demanded that the nature of the intellect be somehow known as a starting point, then under penalty of incoherence one must understand and affirm that the nature of the intellect is known in the act itself of judging. To have recourse to other acts would be to admit that truth is still missing from the act in which we pretended to show that truth exists. Reasoning is necessary to construct a science of the intellect, that is, to know that it is simple, immaterial, and imperishable. St. Thomas says this clearly.¹⁸ But such a science is not necessary in order to know that we have truth. On the contrary, the science is built on this first knowledge as on a foundation (*ex hoc enim quod anima humana universales rerum naturas cognoscit*). To use a concrete knowledge as a starting point, we must already be certain of it. Besides, in the same place where St. Thomas speaks

of the discursive character of our science of the intellect, he explains that there exists antecedently another knowledge by means of which we perceive our intellection. He even determines for us the act which gives us this knowledge. This act is the reflection on the first apprehension of the object; it gives us an understanding of our understanding; it is, therefore, a judgment.¹⁹ Is it not, moreover, clear that any reasoning would fail to make us know truth if the simple direct judgment could not do it? How could we reason, how could we go on to a new judgment from old judgments if we were ignorant of the truth of the judgments from which we start? Hence if he had laid down as a condition for the existence of truth in us a prior reasoning to discover the nature of the intellect, then not only would St. Thomas have been unable to establish that truth is found in the judgment, but he would have made its being found anywhere impossible. He would have been working for the skeptics. His procedure is quite different. He knows and he considers as beyond discussion the fact that we have legitimate certitudes. But he analyzes the conditions of these evident certitudes, and he discovers that the intellect alone, and only in the judgment, can possess them. In the evident judgment he sees realized the conditions of evident certitude. Now one of these conditions, as essential as any other, is that the nature of the intellect be known: therefore it is known in the judgment. Later would be too late.

On the other hand, can we avoid the opposite extreme? Does not the development of this passage imply that we have to understand the nature of the intellect before we can understand the nature of the act? Just as before knowing the relationship of the act with the thing, we have to know, with some kind of priority, the nature of the act, so also do we not have to know the nature of the intellect before knowing the nature of the act? St. Thomas has too often and too clearly repeated that we apprehend our faculties only by reason of their acts and in their acts for anyone seriously to give such an interpretation. This would be to go against the essentials of his doctrine.²⁰ Besides, in writing the passage under consideration, he seems to have been dominated by the intention of excluding any priority of the knowledge of the faculty relative to the knowledge of the act. To show that the knowledge of truth, which is the knowledge of the relationship of the act with the thing, depends upon the knowledge of the nature of the act, St. Thomas had spoken of the first in the present tense and of the second in the past tense: *Quod quidem [proportio actus ad rem] cognosci non potest nisi cognita natura ipsius actus*.

But now, in order to express the relation which exists between the

knowledge of the nature of the act and that of the nature of the intellect, he uses only the present tense: *quae [natura actus] cognosci non potest nisi cognoscatur natura principii activi*.

Undoubtedly, it was not without reason that the author resisted suggestions of symmetry. When soon afterwards, he says that the sense cannot know its own nature, and that it follows that it cannot know the nature of its act, this must be understood to mean only that the power to know the nature of the act supposes the power reserved to spiritual faculties, of reflecting completely on themselves. These two cognitions are inseparable. One same intention apprehends the one and the other. Knowing its act, the faculty, by the same token, knows itself.²¹

This doctrine appears very natural if we consider the restriction contained in the text. The immediate knowledge which the intellect gathers of itself in knowing its act is limited to the certainty that it is made to be conformed to things (*in cuius natura est ut rebus conformetur*). It is not strange that in an act, the intimate essence of which it attains, and by which it is in fact made conformable to its object, the intellect should seize its own natural movement, its proper end, its aptitude to be conformed to things. In this manner, however, it does not apprehend its simplicity, nor its immateriality, nor any other of its prerogatives. It has to enter on a long reasoning process to discover these. Does not the fact that it comes to know the nature of its act suffice to explain its awareness of that for which it is essentially made, and which it, in fact, accomplishes? To know that by nature its act makes it conformed to things and to know that it is a faculty of conforming itself to things, is this not to know one and the same truth? By what kind of dialectic would it discover that it is made to know, if (by a simple insight) it did not see this in the very production of its acts? It would be once more enmeshed in an unsolvable difficulty by pretending to arrive at the most fundamental certitude without knowing whether it is itself the principle of truth rather than error. Though the act of the intellect is distinct from the intellect as the fruit is distinct from the tree which produces it, yet it retains no less with the intellect—the potency of which it is the act—such a close relationship, such an exact proportion, such an immediate dependence, that it is impossible to penetrate the nature of the act without seeing at the same time the nature of the intellect. We can understand the need of some kind of reasoning to pass from the nature of an act to the nature of its principle when we apprehend the act extrinsically in some of its properties, but when the faculty which sees the essence of the act is the same which pro-

duces it, then it grasps in a living unity both the fruit of its own activity and the natural direction of its own movement. The intellect in perceiving itself as actually knowing judges itself to be a faculty of knowing, just as a plant, if it could sense itself forming grapes, would know itself as a grapevine (grape producer).

Moreover, St. Thomas makes it clear how multiple cognitions can be acquired in one act. Only one judgment which is a simple act and a single vision makes known the object, the conformity of the intellect with the object, the nature of the act of apprehension, and the nature of the intellect.²² But all of this intellectual booty is not seized in the same way. One thing alone is known directly and, properly speaking, terminates the act of the mind. This is the (proper) object. The rest is attained by reason of that fact, as implications in that direct knowledge and as conditions of that knowledge. Cajetan saw clearly that this was the conception of St. Thomas. In the detailed commentary he makes on the text of the *Summa* which parallels the one we are studying, he explains that for the intellect to know its conformity with the object is to perceive in itself something as conformed to the object and that to make a judgment, as to say, for example, "Man is two-footed," is precisely to apprehend something as conformed to the object. This is what the act consists in. The conformity with the object is not what the judgment deals with; but the conformity is known by the fact that the judgment deals with an object. The judgment contains this conformity. The judgment is explicitly and directly (*in actu signato*) the affirmation of what the object is, only because it is in essence, implicitly, and as an activity (*in actu exercito*), the affirmation of this conformity of the mind and the object.²³

It is impossible by one sole act to have many cognitions when these cognitions require different determinations in the intellect, that is, many species.²⁴ But if it happens that many cognitions, whatever be their number, can be obtained by means of one single species, they can be had simultaneously and in one same act. (*Quando aliqua multa una specie intelligi possunt, simul intelliguntur.*)²⁵

Now it is one and the same species (that of the object), by reason of which the object, the act of knowledge, and the knowing principle are known.²⁶ The conditions or principles of an act of knowledge are grasped in the same act which makes the object known, if this act itself is apprehended.²⁷ This act is apprehended by the human mind in the judgment. Hence in the judgment, not only the object, but also the principles of the

knowledge of the object, that is, the act and the faculty by means of which the object is known, are attained by the same operation.²⁸

Hence St. Thomas concludes that the intellect knows truth inasmuch as it reflects upon itself: *Unde secundum hoc cognoscit veritatem intellectus quod supra seipsum reflectitur.*

If then we now reread connectedly the text which we have studied line by line, the meaning can be paraphrased as follows:

Truth is found in the intellect, not only as actualized but as known; and it is known because the intellect, in the act of judgment, reflects upon its first operation, the act of simple apprehension. By means of this reflection, the intellect is not only conscious of its act, but it has certitude that its act is the expression of reality. Now it cannot gain such certitude except in the knowledge of the nature of its act, and it cannot know the nature of its act without knowing simultaneously the nature of the principle of this act. This principle is the intellect, and its nature is to be conformed to what is. All these things can be known together in the act itself of the judgment which terminates in the object and this is possible because there is no need of many acts to attain a cognition and its conditions. Truth is found as known in the judgment because in this act the intellect reflects completely on itself and grasps its proper nature.

Thus, we believe, are found satisfied at one stroke two fundamental demands which seem to conflict with one another. Our affirmation that we possess truth must be justified, and it has to be justified without a reasoning process. On the one hand, neither instinct, nor faith, nor will, nor utility, can be the final judge of our certitudes. It is the task of the intellect to reassure the intellect. On the other hand, the intellect cannot for a single moment, while knowing the meaning of the words it uses, say that it is ignorant of its own validity. If it did, it would forever remain ignorant of its validity. How indeed could it learn its own validity if it did not know what that process is in itself which the intellect calls learning? And if it could do this only by some special philosophical effort, what would become of the certainty of the greater part of men who have neither taste nor capacity for such philosophical efforts?

Therefore the intellect must know itself before all method, before all reasoning, before all philosophy. If we have understood him correctly, St. Thomas explains that the intellect knows itself by the fact that it makes a true judgment. But every man who thinks makes true judgments, for at least he knows the first principles and makes use of them.

Notes

NOTES

NOTES TO INTRODUCTION

1. "De origine primorum principiorum scientiae," in *Gregorianum*, XIV (1933), 153-84.

2. *Bijdragen van de philosophische en theologische faculteiten der Nederlandsche Jezuïten*, II (1939), 166-97; III (1940), 73-110, 265-330; IV (1941), 28-78, 299-341; V (1942), 79-150.

3. Charles Boyer, S.J.: "Le sens d'un texte de St. Thomas: *De veritate*, q. 1, a. 9," in *Gregorianum*, V (1924), 424-43. Cf. *supra*, Appendix.

4. P. 179, *op. cit.*, *supra*, n. 1.

5. Boyer has shown that the theory is also developed in two other passages: the commentary on *Metaphysics*, VI, lect. 4 (ed. Cathala, nn. 1234-36), and *Summa theologiae*, I, q. 16, a. 2 (where only the mention of the phrase, *natura actus*, is missing). An echo of the theory is found again in *Contra gentiles*, I, 59. These last two passages make reference to *Metaphysics*, VI.

Translator's note: The paragraph numbers given here and in the text for the following commentaries of St. Thomas on Aristotle: *In Metaphysicam*, *In Ethica*, *In De Anima*, *In De Sensu et Sensato*, and *In De Memoria et Reminiscencia*, are those of the Marietti editions, originally edited for the *In Metaphysicam* by M. R. Cathala, for the others by A. M. Pirotta.

NOTES TO CHAPTER I

1. For those works of St. Thomas which have already appeared in the Leonine edition we shall always quote from this edition.

2. We say "a consideration of the *content*" because the reflection in question is on the noetic, not the metaphysical, nature of the apprehension. Cf. *Contra gentiles*, I, 59:

For since the truth of the intellect is the *equation of thought and thing*, in so far as the intellect asserts that to be which is, and that not to be which is not, truth in the intellect belongs to that which the intellect asserts, not to the operation whereby it asserts. For the truth of the intellect does not require that the act itself of understanding be equated to the thing, since sometimes the thing is material, whereas the act of understanding is immaterial. But that which the intellect in understanding asserts and knows, needs to be equated to the thing, namely, to be in reality as the intellect asserts it to be. (*Cum enim veritas intellectus sit adaequatio intellectus et rei, secundum quod intellectus dicit esse quod est, vel non esse quod non est*, ad illud in intellectu veritas pertinet quod intellectus dicit, non ad operationem qua illud dicit. Non enim ad veritatem intellectus exigitur, ut ipsum intelligere rei aequetur, cum res interdum sit materialis, intelligere vero immateriale; sed illud, quod

intellectus intelligendo dicit et cognoscit, oportet esse rei aequatum, ut scilicet ita sit in re, sicut intellectus dicit. *Ed. Leonina XIII*, 167, a. 7-17.)

3. See for example *Summa theologiae*, II-II, q. 2, a. 1; *De veritate*, q. 14, a. 1; *In Sententias*, III, D. 23, q. 2, a. 2, sol. 1 and 3; and so on.

4. In our study, "De problemate necessitatis geometricae," in *Gregorianum*, XX (1939), 45 sqq. Cf. also "De problemate exactitudinis geometricae I," in *Gregorianum*, XX (1939), 338 sqq.; and II, in *Gregorianum*, XXIV (1943), 225, 232 sqq. We have called these *virtual judgments*; obviously, they can easily become formal judgments, if the intention of the mind turns itself to them.

5. The *natura actus* is mentioned in a text which we shall analyze later (Chap. V, Sect. 2), that is, *In Sententias*, III, D. 23, q. 1, a. 2, ad 3. There it is said that the reflection of the intelligence, which discovers the *natura actus*, finds in the similitude of the object represented the *ratio veri*.

6. *Translator's note*: In Chapter V, Section 3, B, it will be shown that the term *comparare* is broader in meaning than "to compare."

7. Cf. *Summa theologiae*, I, q. 58, a. 1; q. 85, a. 5; *In Sententias*, III, D. 35, q. 2, a. 2, sol. 1.

8. *Translator's note*: In most quotations from the *Summa theologiae*, *Contra gentiles*, and *De potentia*, we use the English Dominican translation; translations of other quotations are our own.

9. For this theory, cf., besides the cited passages, the following: *Summa theologiae*, I, q. 14, a. 7; *Quodlibetum*, 7, a. 2; *In Sententias*, II, D. 3, q. 3, a. 4, and III, D. 14, q. 1, a. 2, sol. 4.

10. This "also" refers to what precedes; namely, "therefore, from a consideration of the words, affirmative enunciation is prior to negative" (*ex parte igitur vocis, affirmativa enuntiatio est prior negativa*).

11. We read in *In Metaphysicam*, IX, lect. 11 (n. 1900): The "to be," in which the composition by the intellect consists, as an affirmation, indicates a certain composition and union; the "not to be," which the negation signifies, removes composition and designates a plurality and diversity. (*Esse autem, in quo consistit compositio intellectus, ut affirmatio, compositionem quandam et unionem indicat; non esse vero, quod significat negatio, tollit compositionem, et designat pluralitatem et diversitatem.*)

12. That is, in the case of all judgments, even negative ones; the negative judgment raises a difficulty which here finds its solution.

13. "*Comparat*" does not mean "to compare," but "to put in relation with"; cf. below, Chapter V, Section 3, B.

14. The same doctrine is found in *In Sententias*, III, D. 23, q. 2, a. 1, sol. 1. In the passage from *In Metaphysicam*, IX, which we have analyzed above, the determination added (n. 1900) was: *compositio intellectus ut affirmatio*.

15. *Cursus Theologicus*, D. 22, a. 3, nn. 11-24 (ed. Solesmes, II, 622-27).

16. *Translator's note*: In practice, however, and in conformity with English usage, we shall employ the word "data" wherever the original was *accepta*.

17. So the Leonine edition; other editions read, *repraesentata*.

18. This same impossibility is insisted upon in *Summa theologiae*, I, q. 111, a. 1. An angel cannot directly impress its proper species on the human mind.

The reason for this is that: The human intellect cannot grasp the universal truth itself unveiled; because its nature requires it to understand by turning to the phantasms, as explained above (Q. 84, a. 7). So the angels propose the intelligible truth to men under the similitudes of sensible things. (*Intellectus humanus non potest ipsam intelligibilem veritatem nudam capere; quia con-naturale est ei ut intelligat per conversionem ad phantasmata, ut supra dictum est (Q. 84, a. 7). Et ideo intelligibilem veritatem proponunt angeli hominibus sub similitudinibus sensibilium.*)

The "universal truth unveiled" is the pure truth which does not suppose the phantasm.

19. *Translator's note:* We shall usually translate these terms by the expressions "objective structure," "structure."

20. The article which we are analyzing next studies the possible influence of the gift of prophecy on the two elements, namely, on the data (*accepta*) and on the critical power of the human mind (*vis intellectualis luminis*), but this does not concern us here. The same theory, with the caesura sharply dividing the data and judgment, is expounded in *De malo*, q. 16, a. 12; *De veritate*, q. 12, a. 3, ad 1, ad 2, obj. 3; *ibid.*, a. 7. This last article expounds at length the whole theory of the composition of phantasms and applies it in the answers to objections 5, 6, and 7. An echo of the theory can be heard in *Summa theologica*, I, q. 12, a. 13, ad 2.

21. *Translator's note:* Light enables you to see; *what* will be seen is the thing illumined; neither the light of understanding nor the habit of faith determines *what* you will understand or believe; in the one case, the determination comes from the senses; in the other, from the preacher.

As always in St. Thomas, the intellect is an instrument for knowing, not a creator of the *thing* known; though it does make the *thing known*. In sight an exterior light makes the thing *visible*, and the eye, the thing *seen*; in intellection an interior light renders the object of the phantasm *intelligible* and the intellect makes it *understood*.

22. On this theory see also *In Sententias*, III, D. 21, q. 2, a. 3 (*secundus gradus*); *ibid.*, D. 23, q. 2, a. 1, ad 4; D. 24, q. 1, a. 2, ad 2. In *Quaestio Disputata De Anima*, a. 5, c., and ad 6, all these elements of the theory recur once more: *determinatio* and *acceptio a sensibus* for the first principles, comparison with the light of faith and of prophecy. In *De veritate*, q. 8, a. 15, only the first principles are spoken of, but the terminology is the same: In our intellect it is necessary that there be certain things which our intellect knows naturally, namely, the first principles, although even that knowledge is not determined in us except through sensible data. (*Oportet quod in intellectu nostro sint quaedam quae intellectus noster naturaliter cognoscit scilicet prima principia, quamvis etiam ipsa cognitio in nobis non determinatur nisi per acceptionem a sensibus.*)

Often the functions of the agent intellect and those of the senses are distinguished by this, that the determination comes from the senses, which under this aspect are in act; whereas the immateriality or the intelligibility is due to the agent intellect. Cf. also *De veritate*, q. 10, a. 6, c., and ad 7; *De spiritualibus creaturis*, a. 10, ad 4; *Compendium theologiae*, c. 88; *Contra gentiles*, II, c. 77.

23. Cf. also *Summa theologica*, II-II, q. 1, a. 2; *De veritate*, q. 14, a. 12.

24. Ed. Pirotta, especially nn. 770 and 777 for the first thesis, and nn. 791 and 792 for the second.

25. This theory is also developed in the following passages: *In Sententias*, II, D. 20, q. 2, ad 3; *ibid.*, D. 23, q. 2, a. 2, ad 3, and III, D. 14, q. 1, a. 3, sol. 2; *ibid.*, sol. 3 (where are also developed the successive processes of sensibility which, according to the final chapter of the *Posterior Analytics* and the introduction to the *Metaphysics*, lead to the understanding of first principles; *In De Memoria et Reminiscencia*, lect. 2 (ed. Pirotta, nn. 314-17); *ibid.*, lect. 3 (n. 341); *De veritate*, q. 10, a. 2, ad 7; *De potentia*, q. 3, a. 9, ad 22 (obj. 23-24); *In De Anima*, I, lect. 2 (ed. Pirotta, n. 19).

26. We cannot, at the moment, treat this "symbolic thinking" in greater detail; cf. however, below, Chapter VI, Section 4.

27. Examples may be seen in our study "De problemate necessitatis geometricae," in *Gregorianum*, XX (1939), 19-54.

28. For this *resolving* (it is sometimes also called *reduction*) see, for example: *In Sententias*, III, D. 31, q. 2, a. 4; *In Sententias*, IV, D. 9, q. 1, a. 4, sol. 1; *In Boethium De Trinitate*, q. 2, a. 1, ad 5; q. 6, a. 1; *De veritate*, q. 1, a. 12; q. 10, a. 8; q. 12, a. 3, ad 2; q. 14, a. 1, and a. 9; q. 15, a. 1; q. 28, a. 3, ad 6; *In Posteriora Analytica*, I, lect. 1, n. 6; lect. 35, n. 2; lect. 41, n. 13; lect. 43, n. 10; *In Metaphysicam*, IV, lect. 15, n. 588; *Summa theologica*, I, q. 79, a. 8; a. 12; II-II, q. 53, a. 4, and so on.

A *resolution of notions* is much less frequent, and it is not done *in order to arrive at a judgment*, but only to arrive at the knowledge of the structure of the notion: thus, *Contra gentiles*, III, c. 41; *In Boethium De Trinitate*, q. 6, a. 4; *Quodlibetum*, 8, a. 4.

29. We flatter ourselves that we have demonstrated this possibility in the article already cited, "De problemate necessitatis geometricae," in *Gregorianum*, XX (1939). We give there a series of examples, geometric and arithmetical, in which man *intuits simply by his intelligence the necessity, and hence the universality*, of a relationship known experimentally. We also give there an explanation of the possibility of this intuition. Though born of sense experience, this intellectual knowledge surpasses this experience, and does not consist in the simple registering of this experience.

NOTES TO CHAPTER II

1. *Translator's note*: The judgment can separate ("abstract") only what are separate in reality (*hac . . . [secunda] operatione intellectus vere abstrahere non potest nisi ea quae sunt secundum rem separata; ut cum dicitur, "homo non est asinus"*).

2. On these two abstractions see also: *Summa theologica*, I, q. 85, a. 1, ad 1; *In De Anima*, II, lect. 12, n. 379, and III, lect. 12, nn. 781-84. In *De veritate*, q. 21, a. 1, ad 2 *in contr.*, we are told that these two abstractions are

made *per modum enuntiandi* and *per modum definiendi*. See also *Quaestio Disputata De Anima*, a. 12, ad 7.

3. *Translator's note*: The original French word, "*trame*," literally means woof, weave.

4. *De veritate*, q. 1, a. 3; *Summa theologia*, I, q. 16, a. 2.

5. *De veritate*, q. 1, a. 2; *Summa theologia*, I, q. 16, a. 1, ad 3.

6. A list of different "true" things, ordered according to the diversity of meaning of "true," is furnished us in *De veritate*, q. 1, a. 3. On the question of falsity as possible in a definition see, for example, *De veritate*, q. 1, a. 3; *In Metaphysicam*, V, lect. 22, nn. 1128-32; and IX, lect. 11, nn. 1908 sq.

7. In his later works, St. Thomas no longer defends the thesis that time is only fundamentally in nature, not formally. Cf. our *Cosmologia*, ed. 3, n. 184, B, p. 242.

8. The adage "as each thing is in respect of being, so it is in respect of truth" is borrowed from the pseudo-Aristotelian Book II of the *Metaphysics*, and plays an important role in the philosophy of St. Thomas, as we shall see in Section 5. This same adage is cited in the continuation of the article we have referred to from the *Sentences*; God is there called *Prima Veritas*, as He is *Primum Ens*, and the commentary adds: *unumquodque enim ita se habet ad veritatem sicut ad esse, ut patet ex dictis. Et inde est quod prima causa essendi est prima causa veritatis et maxime vera, scilicet Deus, ut probat Philosophus in II Metaphysica*.

9. Cf. the *Tabula aurea* of Peter of Bergamo, sub verbo, *intellectus*, nn. 18, 19, 21.

10. *De veritate*, q. 2, a. 8.

11. *Translator's note*: The *consideratio naturae absolutae* is the consideration of a nature which can be in reality and can be understood. What is in reality and what is understood is the same; but its mode of existing in reality is not its mode of existing in the mind (*id quod, modus quo*). What is understood can be understood even though its two modes of existence are not actually understood, since the "what" abstracts from both types of existence, but it cannot be understood unless it has actually an *esse intelligibile*, even though this *esse* is not being considered.

12. The words italicized in the texts just cited (*ratio, ideo, quia*) have a profound meaning and later on we shall have occasion to consider them. Cf. *In Perihermeneias*, I, lect. 10, n. 9 and n. 13.

13. Such a proposition is formally true, only when it is pronounced by an intelligence. That is why St. Thomas adds that the eternal truth of these propositions is found only in the divine intellect. We shall treat of this in our next section. St. Thomas also says that this "order," though necessary, is not actual; and he refers us to the end of the chapter where we read: *Necessitas enim essendi quae in creaturis invenitur . . . est necessitas ordinis. . . . Necessitas autem ordinis non cogit ipsum cui talis inest necessitas, semper fuisse. Note the necessitas essendi*.

14. See also *In Metaphysicam*, V, lect. 11, n. 910; and *In Perihermeneias*, I, lect. 13, n. 6.

15. Truth is properly found in the intellect, human or divine, just as health is properly found in an animal. (*Veritas proprie invenitur in intellectu humano vel divino, sicut sanitas in animali. De ver.*, q. 1, a. 4; cf. *Sum. theol.*, I, q. 16, a. 6.)

16. See also *De veritate*, q. 3, a. 2, c, and ad 7, 8, 9; *Summa theologica*, I, q. 44, a. 3.

17. See also *Summa theologica* I, q. 10, a. 3, ad 3; *De veritate*, q. 1, a. 5, 6; *De potentia*, q. 3, a. 17, ad 27, 28; *Contra gentiles*, II, 84; *Quodlibetum*, 4, a. 1; *In Sententias*, I, D. 19, q. 5, a. 2, 3.

18. These are found especially in Chapter 7 of the second book of his *Psychologie vom empirischen Standpunkt* (1874). Brentano published a new edition, greatly augmented, of Chapter 5 and what follows, under the title *Von der Klassifikation der psychischen Phaenomene*. A new edition of the whole book was published through the efforts of O. Kraus in the *Philosophische Bibliothek* of F. Meiner (nn. 192, 193); the second volume contains the *Von der Klassifikation*. We shall refer to this edition. Brentano re-enunciated his theses in his work *Vom Ursprung sittlicher Erkenntnis*. The same Kraus edited an edition of this work in the collection of Meiner (n. 55). We shall refer to these three editions under the abbreviation Kr. I, II, III.

19. C. Stumpf, *Erscheinungen und psychische Funktion*, p. 26 (Kr. II, p. xiii).

20. As we have said, Brentano admits a third fundamental class of psychic phenomena, that of the emotions—love and hate; he opposes this class, together with the second, that of affirmation and negation, to the first—even if this is composite. St. Thomas, following Aristotle, had done something similar; cf. *In De Anima*, III, lect. 12, nn. 767–69; *In Ethica Nicomachea*, VI, lect. 2, n. 1128.

21. Kr. II, pp. 53–63.

22. Kr. II, p. 59.

23. Kr. II, p. 57.

24. Kraus, in his long note 13 (pp. 284–86), seeks to make a correction and to distinguish various cases; but he also admits, as a truth established by Brentano, that even a universal affirmative mathematical judgment is always, at bottom, of a negative nature. He says (p. 285): “It is strange that the negative character of all the so-called laws, especially the mathematical laws, despite the irrefutable evidence supplied by Brentano, is still unknown.”

A philosopher who has devoted some time to the study of the origin of the first mathematical judgments would find this opinion of Kraus “strange.”

25. Kr. I, p. 78.

26. F. Hillebrand, a pupil of Brentano, has developed this logic in his little volume, *Theorie der kategorischen Schlüsse*, Wien, 1891.

27. Kr. II, p. 86.

28. See, for example, E. Meyerson, *Du cheminement de la pensée*, pp. 194–261, and the corresponding literature, pp. 825–47. On some of the views of Meyerson we should like to make corrections.

29. Cf. *In Physica*, III, lect. 5; *In Metaphysicam*, V., lect. 9, nn. 889–92,

and XI, lect. 9, n. 2313; *De veritate*, q. 1, a. 1; *In Sententias*, III, D. 6, q. 2, a. 2.

30. Ed. 3, pp. 69 sq., 216-18, 224, 249, 252 sq., 497-500; ed. 2, pp. 73 sq., 225-27, 233, 260, 445 sq., 478-80.

31. *Translator's note*: This difficult term, "*Sachverhalt*," we translate usually by "objective structure," sometimes by "structure," and occasionally by "disposition." Cf. *supra*, Chapter I, note 4.

32. The figure which, in the printed editions, should illustrate the second thesis, is inexact and does not correspond to the text. It represents only a special case; the text, on the contrary, considers, as it should, the general case: "*et in puncto B, qualitercumque cadat, constituatur angulus*." See also the end of n. 1893.

33. In the human mind, for the first case, the disposition of the representation would have to change (if the judgment is affirmative); in the intellect of God, this would not take place (see *De ver.*, q. 2, a. 7). The reason for this is that man "*ad hoc quod inhaerentiam unius ad alterum cognoscat, componit alteram speciem cum altera et unit eas quodammodo*"; but the intellect of God "*semper in eadem dispositione manens, ipse cognoscit omnes dispositiones rerum qualitercumque variatarum*" (ad 1; cf. ad 6, and q. 2, a. 13, *in fine*). These texts teach us two things: first, how the term "*dispositio*" expresses an order where there cannot be an order of parts, as in the understanding of God; and secondly, that the word "*dispositio*" is a technical term which expresses the proper relation of the subject and predicate, both in the thing and in the mind.

34. Here are the texts which speak of it or refer to it: *In Metaphysicam*, II, lect. 2, n. 298; IX, lect. 11, n. 1903; *Summa theologica*, I, q. 16, a. 3, "*sed contra*"; I-II, q. 3, a. 7; *Contra gentiles*, I, 1 and 62; *In Physica*, VIII, lect. 3, n. 6; *De veritate*, q. 1, a. 1, obj. 5; *De caritate*, a. 9, ad 1; *In Sententias*, I, D. 19, q. 5, a. 1; *In Posteriora Analytica*, I, lect. 4, n. 5.

In the pseudo-Aristotelian book, *Metaphysics* II, the adage is formulated (993, b, 30): "As each thing is in respect of being, so is it in respect of truth."

35. See the simple example in *Summa theologica*, I, q. 16, a. 8, ad 4: "*sessio Socratis quae est causa veritatis huius propositionis, 'Socrates sedet.'*"

NOTES TO CHAPTER III

1. See *Summa theologica*, I, q. 13, a. 4; *Contra gentiles*, I, 35; *De potentia*, q. 7, a. 6; *In Sententias*, I, D. 2, q. 1, a. 3, and D. 22, q. 1, a. 3.

2. It is probably an echo of the theory of the Greek philosophers who, under Eleatic influence, exaggerated the identity of the subject and predicate. St. Thomas himself, in his commentaries on Aristotle, names Lycophron (*In Physica*, I, lect. 4, nn. 1-3) and Antisthenes (*In Metaphysicam*, V, lect. 22, nn. 1133 sq.; cf. VIII, lect. 3, nn. 1720 sq.).

Recently Antisthenes has attracted attention. See A. J. Festugière, O.P., "*Antisthenica*," in *Revue des sciences philosophiques et théologiques*, 1932,

pp. 345-76. E. Meyerson, in his book, *Du cheminement de la pensée*, devoted a whole chapter (Vol. II, Chap. V, pp. 262-94) to the Greek philosopher and to the moderns who follow him or attack him.

3. This passage shows that we can attribute predicates to God both in the concrete and in the abstract; we can say, "God is good," and, "God is goodness." The last expression is permitted because in God there is really identity between His being and His abstract attributes. The two expressions are permissible, but both of them are also defective: the concrete, because taken strictly it supposes composition; the abstract, because the forms which man knows in material things are not subsistent. See also *Summa theologiae*, I, q. 3, a. 3, ad 1.

4. Roland-Gosselin, O.P., in his edition of *De ente et essentia*, p. 40, note, says on the occasion of the text he is explaining: "It is perhaps not useless to remark that St. Thomas has never departed from this modest and prudent intellectual attitude. On any and every occasion he reverts to the difficulty we have in knowing the essential differences of sensible things, even though their essence is the proper object of our intellect and even though science's aim is to establish definitions by way of the proximate genus and the specific difference." The references which he gives are (with certain corrections and supplements), besides the text he is explaining (Chapter V): *In Sententias*, II, D. 3, q. 1, a. 6; *In Sententias*, III, D. 26, q. 1, ad 3; *In Sententias*, IV, D. 14, q. 1, a. 1, sol. 6, ad 1; D. 44, q. 2, a. 1, sol. 1, ad 1; *Contra gentiles*, I, 3; IV, 1; *Summa theologiae*, I, q. 29, a. 1, ad 3; q. 77, a. 1, ad 7; I-II, q. 49, a. 2, ad 3; *De veritate*, q. 4, a. 1, ad 8; q. 10, a. 1, c., and ad 6; *De potentia*, q. 9, a. 2, ad 5; *De spiritualibus creaturis*, a. 11, ad 3; *In Posteriora Analytica*, II, lect. 13, n. 7; I, lect. 4, n. 16; *In De Anima*, I, lect. 2, n. 15; *De ente et essentia*, cc. V, VI, and VII.

5. After what has preceded, there is no need to show that there is no contradiction between *Summa theologiae*, I, q. 85, a. 5, ad 3, and the text we have seen from *In Metaphysicam*, IX, lect. 11, n. 1898, even though the first says that there is a difference of mode of the composition of the proposition and that of the thing, the second demanding conformity also for the mode of composition. The two texts put into correspondence the matter-form relation, in the thing and in the proposition. In the first text there is question of the judgment and, especially, of the proposition, as an affirmation which follows the recognition of the material identity of the new and of the already known; in the second text there is question of an affirmation of the composition of the data, "So it is." The two descriptions come to the same thing.

6. A similar formula recurs in numerous passages: *Summa theologiae*, III, q. 16, a. 9, c., and ad 3; a. 10, c, and ad 2; q. 17, a. 1, ad 3; *In Sententias*, III, D. 1, q. 5, a. 5, ad 5; D. 6, q. 1, a. 3, ad 3; D. 6, q. 2, a. 1, ad 7; D. 11, q. 1, a. 2, ad 3; D. 22, q. 1, a. 2; *In Sententias*, I, D. 21, q. 2, a. 1, ad 1.

7. This formal sense is, for St. Thomas, that which is properly "signified." See *In Sententias*, III, D. 6, q. 1, a. 3:

In every term there are two things to be considered: that by reason of which the term is imposed (and this is called the quality of the term), and that on which the term is imposed (and this is called the substance of the term). The

term properly so-called *signifies* the form or quality by reason of which the term is imposed; it is said to stand for that on which it is imposed. (*In quolibet nomine est duo considerare: scilicet, id a quo imponitur nomen, quod dicitur qualitas nominis, et id cui imponitur, quod dicitur substantia nominis; et nomen, proprie loquendo, dicitur significare formam sive qualitatem, a quo imponitur nomen; dicitur vero supponere pro eo cui imponitur.*)

8. One must not lose sight of the fact that the copula "is," when it is the so-called "third element" (*tertium adiacens*), forms only one predicate, only one "verb" with the "noun" found in the predicate (*In Perihermeneias*, II, lect. 2, nn. 2, 4).

9. The Greek text reads, "When one merely says 'being' ($\tau\omicron\delta\ \delta\upsilon$), this word has as yet no sense." The Latin had, instead of "being" (*ens*), the word "is" (*est*). There then follows in both readings, "co-signifies composition." St. Thomas sums up the commentaries of Alexander of Aphrodisias, of Porphyry, and of Ammonius, but accepts none of them; he then gives his own explanation. What is of importance for us is only the sense which he gives to the term "is" as copula; for this, independently of the intention of Aristotle, teaches us the theory of St. Thomas on the copula.

10. Cf. *Gregorianum*, XX (1939), 46-54.

11. The quantification of an element of the predicate, the possibility of which is proved by the given example, is not found in Aristotle. We find it however in Ammonius with the same example (ed. Busse, p. 107). St. Thomas probably borrowed it from this commentator.

12. H. Poincaré: *Dernières pensées*, p. 102.

13. We refer the reader to the already cited chapter of E. Meyerson, *Du cheminement de la pensée*, L. II, Chap. V., pp. 262-94.

NOTES TO CHAPTER IV

1. On the *modi dicendi per se* and *per accidens* see also *In Metaphysicam*, V, lect. 19, nn. 1054-57; lect. 22, nn. 1139-43. In *In Posteriora Analytica*, I, lect. 35, n. 4, they are reduced to the first two. In lect. 26, n. 2, on the contrary, the fourth is considered as the principal one; especially for the *propter quid* demonstration and for the first figure of the syllogism (geometry being used as an example).

2. There is a perfect correspondence in the precision of what is the *primo* in the *per se*, namely, what is necessary and sufficient, and the *regula discretionis elementorum theoriae physicae* which can be so serviceable to cosmology. See our *Cosmologia*, ed. 2, nn. 263-65, and the applications throughout the book. In a work written in Dutch, and in the third edition of our *Cosmologia*, we have preferred to call this principle, "the principle of the *elimination* of superfluous elements of an explanatory theory." This principle plays a part in the *Posterior Analytics*.

3. Aristotle also makes use of the expression $\eta\ \alpha\upsilon\tau\omicron$ (73 b 29) as a synonym of $\kappa\alpha\theta'\ \alpha\upsilon\tau\omicron$ (*per se*). He also uses both terms together (75 b 27). St. Thomas translates the $\eta\ \alpha\upsilon\tau\omicron$ by *secundum quod ipsum* (that is, "by reason of its own

nature") and uses it in the same sense ("*per se*" et "*secundum quod ipsum est*" *idem est* we are told in lect. 11, n. 5. Cf. also, n. 3). The phrase, *secundum quod ipsum est* (for example, *triangulus secundum quod triangulus est*, that is, "a triangle, precisely because, or in so far as, it is a triangle"), is found often in the works of St. Thomas as an addition to the subject of a proposition, to indicate that it is a *per se* proposition and, especially when it is universal, to accentuate the formal function of the subject. We shall immediately see some examples in treating of reduplicative propositions.

4. See, for example, *In Posteriora Analytica*, I, lect. 14, n. 2; lect. 15, n. 3; *In Metaphysicam*, III, lect. 2, nn. 352 sq.; lect. 6, nn. 395, 399, 401 sq.; IV, lect. 1, n. 529; VI, lect. 2, n. 1175; lect. 3, n. 1198; XI, lect. 8, n. 2271; *De veritate*, q. 2, a. 7; *De potentia*, q. 5, a. 4, ad 3; q. 7, a. 4; *Summa theologiae*, I, q. 3, a. 6; q. 77, a. 6; I-II, q. 7, a. 2, ad 2.

5. See: *In Sententias*, I, D. 3, q. 2, a. 2; *De spiritualibus creaturis*, a. 11, c., and ad 5, 7, 12; *Quaestio Disputata De Anima*, a. 12, ad 7; a. 14, c., and ad 4; *De potentia*, q. 7, a. 4; *Summa theologiae*, I, q. 54, a. 3, ad 2; q. 77, a. 1, ad 5; a. 6, c., and ad 1, 2, 3; a. 7, ad 1.

6. The text of *In Sententias*, IV, D. 10, a. 2, sol. 3, ad 3, "God could, however, make the Body of Christ be without its proper accidents, at least without some of them" (*posset autem Deus hoc facere ut [Corpus Christi] sine propriis accidentibus esset; ad minus aliquibus*), is not necessarily in contradiction with the generality of this rule. It can well be that St. Thomas has in mind *individual propria*, not specific ones. Moreover, from the critical point of view, the text is not too certain.

7. Reduplication also has this function outside the proposition. If we say that the object of metaphysics is "being as being" (*ens qua ens*), there is reduplication. The first term, "being," is taken materially but has at the same time a formal sense. This formal sense is accentuated by the reduplication and thus the second term, "being," is taken formally. This is the reason why the first term can be quantified, as the subject of a proposition, by the term "every" (*omne*), whereas the second term, like the predicate of a proposition, does not admit quantification.

8. The following passage from *Contra gentiles*, II, 25, also attributes an absolute necessity to the formal nexus as such:

Since the principles of certain sciences, for instance, of logic, geometry, and arithmetic, are taken only from the formal principles of things, on which the essence of those things depends, it follows that God cannot effect the contraries of these principles; for instance, that a genus be not predicable of its species, or that lines drawn from center to circumference be not equal, or that the three angles of a rectilinear triangle be not equal to two right angles. (*Cum principia quarundam scientiarum, ut logicae, geometricae et arithmeticae, sumantur ex solis principiis formalibus rerum, ex quibus essentia rei dependet, sequitur quod contraria horum principiorum Deus facere non possit; sicut quod genus non sit praedicabile de specie, vel quod lineae ductae a centro ad circumferentiam non sint aequales, aut quod triangulus rectilineus non habeat tres angulos aequales duobus rectis.*)

9. See, for example, A. N. Whitehead and B. Russell, *Principia mathematica*, ed. 2 (reprint of 1935), pp. 7, and so on.

10. In the works of Scotus: *Quaestiones super libros Analyticorum Priorum*, I, 10; II, 3. Some texts can be seen in Prantl, *Geschichte der Logik im Abendlande*, III, 139-41, and Notes 615, 617, 619, 621, and 622.

11. See Prantl, *ibid.*, I, 453-56.

12. We give this reference as a sample of the style Prantl uses when he meets something which displeases him; and this is not rare. The author expresses himself in the same way when he tackles more profound things which he does not sufficiently understand, and which he condemns through antipathy; such are many of his evaluations of the logicians of the Middle Ages. But his book remains an imposing collection of texts, and so, independently of Prantl's own evaluations, retains its value. But even this documentation, strange as it may seem, has some regrettable lacunae. For the doctrine of the judgment according to St. Thomas—whom we found proposing very important ideas—I have been able to get nothing from Prantl, absolutely nothing.

13. All of the above had already been written when there appeared in *Angelicum* (April 1940) an article by I. M. Bochenski, O.P., which treats the theory of modal propositions (not the theory of conditional propositions). On the question we have just treated, consult in the article his "Excursus II," 207-13. This article contains also a critical edition of the opusculum of St. Thomas, *De propositionibus modalibus*, pp. 183-200. We did not find it necessary to change our exposition.

14. Consult also *Summa theologiae*, II-II, q. 1, a. 3, ad 2: It has a certain necessity of infallibility (*habet quandam necessitatem infallibilitatis*).

15. Consult also *In Sententias*, I, D. 38, q. 1, a. 5, ad 4; also c., and ad 3, 5; *Summa theologiae*, I, q. 14, a. 13, c., and ad 2, 3; II-II, q. 171, a. 6, obj. 3; *Contra gentiles*, III, 94; *De veritate*, q. 2, a. 12, ad 7, c., and ad 2-5.

N.B. *Translator's note*: At this point, in the body of the original French text, Hoenen gives a critical discussion of two textual difficulties. He suggests that *De veritate*, q. 2, a. 2, ad 7, should read: "*quia contrarium consequentis nullo modo stare potest cum antecedente*," instead of, "*quia contrarium antecedentis nullo modo stare potest cum consequente*." He likewise suggests that *Summa theologiae*, I, q. 14, a. 13, ad 2, should read: "*quod consequens non sit necessarium absolute*," instead of, "*quod consequens sit necessarium absolute*."

16. Besides the passages already cited, here are further references: *In Sententias*, I, D. 42, q. 2, a. 1, ad 2; III, D. 1, q. 2, a. 3; D. 12, q. 2, a. 1; IV, D. 18, q. 2, a. 3, sol. 1, ad 1; *De potentia*, q. 1, a. 6, ad 3; *Quodlibetum*, 5, a. 4; *Summa theologiae*, I, q. 23, a. 3, ad 2; q. 44, a. 1, ad 2; *Contra gentiles*, I, 13.

17. *Summa theologiae*, I, q. 13, a. 1, ad 2; q. 3, a. 3, ad 1.

18. Consult Whitehead and Russell, *op. cit.*, pp. 20, 138, etc.

19. *Ibid.*, pp. 21 sq. It is to be regretted that logistics ordinarily forgets this origin, and makes the formal implication a universal material implication.

20. Consult, besides the two places mentioned, *Summa theologiae*, I, q.

59, a. 1, ad 1; q. 79, a. 9; a. 12; *De veritate*, q. 15, a. 1; *In Sententias*, II, D. 9, a. 8, ad 1.

21. Consult also *De veritate*, q. 14, a. 1, where we are told of this resolution: "All knowledge is perfected by an intuition of a present object" (*omnis scientia in visione rei praesentis perficitur*).

22. On this point again consult *In Posteriora Analytica*, lect. 16, nn. 6–8; lect. 42, n. 3.

23. Consult *Summa theologiae*, I, q. 86, a. 1; *De veritate*, q. 2, a. 6; q. 10, a. 5; *Quaestio Disputata De Anima*, a. 20, ad 1 in contrarium; *In De Anima*, III, lect. 8, nn. 712 sq.

24. The "return" is evidently not a movement in the strict sense; its meaning is explained in *De veritate*, q. 2, a. 2, ad 2; consult also *In Sententias*, III, D. 23, q. 1, a. 2, ad 3. In the critical part of the theory we shall examine thoroughly these diverse but extremely important reflections.

25. This "continuation" is lacking in the theory of Averroes, a theory which is so often attacked by St. Thomas; in that theory it is not "the man" who knows in both cases.

NOTES TO CHAPTER V

1. Consult, nevertheless, on this passage, a remark of St. Thomas in *In Physica*, VII, lect. 6, nn. 8 sq.

2. The same difficulty, with a summary solution, is found in *De veritate*, q. 10, a. 9, ad 3, in contrarium.

3. Consult also *In Sententias*, I, D. 17, q. 1, a. 5, ad 3.

4. *In Perihermeneias*, I, 3; *In Metaphysicam*, VI, 4; *De veritate*, I, 9; and *Summa theologiae*, I, q. 16, a. 2.

5. Consult also *De veritate*, q. 10, a. 5, ad 4.

6. See the examples in our study, "De problemate necessitatis geometricae," in *Gregorianum*, XX (1939), 19–54. See also, below, Chapter VI, Section 5.

7. Charles Boyer, "Le sens d'un texte de St. Thomas," in *Gregorianum*, V (1924), 424–43. [This article appears, in translation, as the Appendix to this book.]

8. Here is a small collection of texts whose number could be increased without difficulty:

In *Summa theologiae*, I, q. 16, a. 1, the two expressions, *comparari* and *habere ordinem*, are used in a perfectly identical meaning; so also, in q. 17, a. 1, the expressions *per comparisonem* and *per ordinem*. We shall see in a moment that the relation to place or to the surroundings is often formulated, *comparatio ad locum*, and we read at the same time, *ordinem ad locum* (*In Physica*, IV, lect. 6, n. 9; *In Sententias*, IV, D. 10, q. 1, a. 2, sol. 3, ad 2). Concerning the same matter and in the same sense, *Summa theologiae*, III, q. 76, a. 7, ad 1, says, *habitus ad medium*.

The same term, *habitus*, is used as equivalent in *Quaestio Disputata De Anima*, a. 12, ad 17, where we read *comparari* alongside of *habere habitudinem*. Likewise, *De spiritualibus creaturis*, a. 11, ad 16. The *habitus ad causam* is described as *comparari* in *Summa theologiae*, I, q. 52, a. 3, ad 3.

Elsewhere, the following are equivalents: *per comparisonem ad respectu*; thus, *In Sententias*, IV, D. 11, sol. 2, ad 2; *In Physica*, IV, lect. 21, n. 6; likewise, the two expressions, *in comparatione* and *per relationem in De veritate*, q. 1, a. 4.

Comparatio and *comparare* do not then always have the meaning of "comparison" and of "to compare," but often have the more general meaning of relationship, relation, connection, and the corresponding verbs, active and passive. The two terms are often met with when a proportion is described, that is, an equality of two "ratios"; then each of these ratios is a *comparatio*. The expression of an analogy of proportionality will make frequent use of these terms.

Here are some specifications of this general sense:

a) The relation between place and the thing in place. There are a great number of passages which describe the familiar Thomist theory that this relation has its origin in contact (*mediantibus dimensionibus*). Here are some texts: *Nullum corpus comparatur ad locum nisi mediantibus dimensionibus* (*In Sententias*, IV, D. 10, q. 1, a. 1, ad 5). In the same sense of relation to place the terms under discussion appear in *In Sententias*, IV, D. 10, q. 1, a. 3, sol. 1, ad 1, 2, 4; sol. 3, ad 2, 3; IV, D. 44, q. 2, a. 2, sol. 5; *In Boethium De Trinitate*, q. 4, a. 3; *In Physica*, IV, lect. 3, n. 8; lect. 6, n. 9; *Summa theologica*, III, q. 76, a. 5, c., and ad 3; a. 3, ad 3. In this matter, the *comparari* does not even include an equality of dimensions; this is clear from an expression of *Summa theologica*, III, q. 76, a. 5: *dimensiones propriae corporis Christi comparantur ad locum illum mediante substantia*; this is also the unique exception to the first rule quoted above, *Nullum corpus*, and so on.

b) A similar relation between time and the temporal is expressed by the same terms. *In Sententias*, IV, D. 11, q. 1, a. 3, sol. 2, ad 2 speaks at first of *duo instantia respectu eiusdem motus*, and a moment later of *duo instantia per comparisonem ad diversos motus*. See also *In Physica*, IV, lect. 21, n. 1, and n. 6; lect. 23, n. 6.

c) The article of the *Sentences* which we have just cited also makes mention of two *instantia* in the movement which is the substratum of time; these *instantia* are accidents of this movement. This relationship is expressed thus: *comparantur . . . sicut accidens ad subiectum*. To express this relation of the accident to its subject, use is made of the term *comparatio* in: *Summa theologica*, I, q. 28, a. 2; q. 77, a. 4, obj. 2; *De veritate*, q. 1, a. 5, ad 16; *Quaestio Disputata De Anima*, a. 12, ad 5; *De spiritualibus creaturis*, a. 11, ad 1.

d) The relation between the intellect and its object is called *comparatio* in *In Perihermeneias*, I, lect. 3, nn. 7, 8, and 9; *De veritate*, q. 1, a. 2 and a. 4; *Summa theologica*, I, q. 16, a. 1; q. 17, a. 1; q. 84, a. 7, ad 3. The same relation between the sense and its object, in *Summa theologica*, I, q. 16, a. 2. The term is used for the relation of the will to its object in *Contra gentiles*, I, 79: *velle est per comparisonem ad volitum*. This is why they are "relative." Again, the same term expresses universally the relation between the faculty and its object in *Summa theologica*, I, q. 77, a. 4, obj. 2: *comparatio potentiarum ad obiecta*. See also *Quaestio Disputata De Anima*, a. 13, ad 20; *De spiritualibus creaturis*, a. 11, ad 1; *De veritate*, q. 10, a. 9.

e) The relation of an agent to its object or its effect or its instrument, is a *comparatio* in *Summa theologica*, I, q. 52, a. 2; a. 3, ad 3; q. 78, a. 1; *Contra gentiles*, III, 40; *In Posteriora Analytica*, I, lect. 16, n. 8. Some particular cases of this kind are: *Contra gentiles*, III, 69 (*comparatio corporis coelestis ad corpus elementare*), and II, 76 (the relation of sun to colors). To this class belongs the relation between the master and the servant in *Contra gentiles*, IV, 74. Cf. also *Summa theologica*, I-II, q. 68, a. 8: *dona perficiunt vires animae in comparatione ad Spiritum Sanctum moventem*.

f) Finally, use is made of *comparatio* to indicate the relation of form to *esse*, of act to potency, of object to act, and of soul to body. Cf. *Summa theologica*, I, q. 54, a. 3; q. 55, a. 1; q. 77, a. 3; *Contra gentiles*, III, 66; *Quaestio Disputata De Anima*, a. 12, ad 17; *De veritate*, q. 8, a. 9; q. 10, a. 8, ad 12; q. 15, a. 2.

In all these texts, the number of which could be multiplied without difficulty, the terms *comparare* and *comparatio* do not signify "to compare" and "comparison," but "to put into relation" in an active sense, or "to have a relation" in a passive sense. Often there is this nuance, that the mind either makes this relation or at least actively recognizes it. And thus it is evident that, in the text of *Contra gentiles*, I, 59, we must look upon *comparatio* as synonymous with *applicatio*.

9. This is the doctrine of *In Perihermeneias*, I, lect. 3; *Summa theologica*, I, q. 16, a. 2; and *In Metaphysicam*, VI, lect. 4. We have also found it in *In Sententias*, III, D. 23, q. 1, a. 2, ad 3, where the same functions are attributed respectively to the incomplete and complete reflections. Because the intellect, and it alone, can know the nature of the act, it can, by a complete reflection, know the *ratio* of truth; then it knows its truth in such wise that a judgment can rightly follow.

10. This is the text as read in the printed editions. According to the autograph of the author, however, some corrections must be made. We have indicated the principal one: instead of *quod* we should read *quae*. Even this does not change the sense in any way. The text of the autograph can be found in note 3 of an article of J. de Vries to which we shall soon refer.

11. It has already been mentioned (*In Sent.*, III, D. 23, q. 1, a. 2, ad 3) that the knowledge of this nature conditions the knowledge of the *ratio* of truth, and that this knowledge is reserved to the intellect. See above, Sect. 2.

12. M. D. Roland-Gosselin, *Revue des sciences philosophiques et théologiques*, X, 230 sq.: *Si cet enseignement fait difficulté, c'est à cause de la doctrine soutenue ailleurs par Saint Thomas sur la manière dont l'intelligence connaît sa propre nature. Il paraît dire alors que c'est après une longue étude abstraite et par voie de conclusion, et il faudrait ici, semble-t-il, que l'intelligence eût conscience d'emblée et intuitivement de ce qu'elle est. Il y a là un problème historique et un problème philosophique dont il ne semble pas qu'on a trouvé de solutions satisfaisantes.*

13. See also *Summa theologica*, I-II, q. 112, a. 5, ad 1.

14. The doctrine of St. Thomas on the potencies seems to us less clear, and certainly it is not simple; it will not be necessary, however, for our purpose, to treat the problems which are presented in this matter. See *Summa theologica*, I, q. 87, a. 2; *De veritate*, q. 10, a. 9; *Contra gentiles*, III, 46.

15. *Loc. cit.*, p. 230. For St. Thomas's text, cf. *supra* Section 4, B.

16. See also *In Sententias*, II, D. 23, q. 2, a. 1. This thesis is not one which St. Thomas defended only later in life; the words of the *Sentences* were written before the article of the *De veritate*, or at least about the same time. Moreover, in the *De veritate*, there is described at least three times the same order in the reflection (*Ibid.*, q. 2, a. 2, ad 2; q. 10, a. 8 and a. 9). And it is always the same succession which we find elsewhere, as in *Summa theologiae*, I, q. 87, a. 1, a. 2, a. 3; q. 14, a. 2, ad 3; *Contra gentiles*, III, 26, 46; *Quaestio Disputata De Anima*, a. 3, ad 4; a. 16, ad 8; *De malo*, q. 16, a. 8, ad 6; *In De Anima*, II, 6, n. 308.

Some of these latter texts consider this thesis as a special case of the general Aristotelian thesis which says that a potency is known only by its act. This thesis St. Thomas made his own; he had found it in the ninth book of the *Metaphysics* (lect. 10, nn. 1888-94), and he applied it frequently. See, for example, besides the places already cited: *In Metaphysicam*, II, lect. 1, nn. 280 and 282; *In Sententias*, IV, D. 49, q. 2, a. 1; *In Boethium De Trinitate*, q. 5, a. 3; *Contra gentiles*, II, 98; *Summa theologiae*, I, q. 12, a. 1; q. 14, a. 3; III, q. 10, a. 3; *De veritate*, q. 2, a. 4, ad 7; q. 13, a. 3; *In De Anima*, III, lect. 9, n. 724, and so on.

This last text repeats our special case: For we only know our intellect by reason of this, namely, its act of understanding. (*Non enim cognoscimus intellectum nostrum nisi per hoc, scilicet ipsum eius intelligere.*)

And we remember the concise formula of *Summa theologiae*, I, q. 87, a. 3: Therefore the first thing understood of the intellect is its own act of understanding. (*Hoc igitur est primum quod de intellectu intelligitur, scilicet ipsum eius intelligere.*)

17. Elsewhere also St. Thomas seems to use the term *nisi* as a synonym for *quin*, or the expression *ita quod non*; these expressions are found in the same passage, *Summa theologiae*, I, q. 16, a. 3, ad 3. See also *In Sententias*, I, D. 19, q. 5, a. 1, ad 2.

In *De veritate*, I, 9, the *nisi cognoscatur* signifies, then, "unless there be known." The term *nisi* seems to indicate a condition; and what follows may be the reason for using it: if a cognoscitive faculty necessarily knows its nature in its act, then the absence of this knowledge is an *index* of the absence of the knowledge of the nature of the act; hence the presence of this knowledge is a sign of the presence of the other knowledge, that of the nature of the act, and thus it becomes a *condition*, not real but logical. And it is precisely this condition which St. Thomas will immediately apply to the knowledge of the senses.

18. G. Rabreau, *Le jugement d'existence*, Paris, Vrin, 1938, p. 133.

19. Grammatically, the word *celle-ci* cannot refer to *l'acte*; according to the sense neither can it refer to *la connaissance*, and certainly not to *proportion*. It seems also that the word *nature* has twice disappeared.

20. Wilpert, "Das Problem der Wahrheitssicherung bei Thomas v. Aquin," in Baeumker's *Beiträge*, XXX, H. 3 (1931), 65.

21. J. de Vries, "Die Bedeutung der Erkenntnismetaphysik für die Lösung der erkenntniskritischen Frage," in *Scholastik*, VIII (1933), 322.

NOTES TO CHAPTER VI

1. In *De Anima*, I, lect. 8, n. 111; also, In *Sententias*, II, D. 23, q. 2, a. 1.
2. See Chapter IV.
3. The relation between intelligibility and the recognition of the *esse* is a *per se* relation; the defect of intelligibility involves the withholding of the affirmation; this shows that the relationship is not only *per se* but also *primo*. We shall return to this in the following chapter.
4. Likewise, in *Summa theologiae*, I-II, q. 10, a. 2, ad 2.
5. This *actus* is necessary (See above, Chap. II, Sect. 5, reference to *In Metaphysicam*, IX, lect. 10, nn. 1888-94); it is a particular instance of the universal thesis we have already seen: *unumquodque est cognoscibile secundum quod est actu et non secundum quod est in potentia*.
6. Needless to say, there is no question of a body which has the exterior figure of a swan; certainly the surface of such a body would admit a green color. But there is question of an animal, the swan, whose essence is only imperfectly known to us.
7. Note also how we find here realized a number of details which St. Thomas described in the texts we analyzed above. Here are some of them. The first operation of the mind is concerned with the quiddity (including the composite quiddity), the second is concerned with *esse*; this *esse* is recognized during the caesura (Chap. II, Sect. 1). The quiddity which is intelligible is "being" and "true" (*Ibid.*). The *esse* is discovered in a "necessary relation" of the "nature absolutely considered"; it is to this latter that *competit esse*. For the human mind this absolute nature, together with its singular realizations, has priority (Chap. II, Sect. 2). The formal function of the "*ratio* of the subject" characterizes the *per se* proposition (Chap. IV, Sect. 1 and 4); that is, the whole "as whole" (not, for example, as colored) is greater than its part. The necessity is that of the formal nexus, with its intelligibility (Chap. IV, Sect. 4), for in a disposition which is not affirmed there is only a material connection, or at least a nexus which is not recognized as formal. Finally, there is the identification of the formal nexus and of the intelligibility with "formal abstraction" (Chap. IV, Sect. 2 and 3).
8. See the examples in "De problemate necessitatis geometricae" in *Gregorianum*, XX (1939), 20-31, 43-46.
9. We have formulated a certain number of these principles, especially in our work, written in Dutch, *Philosophie der anorganische Natuur*, 2nd ed., 1942. See also the 3rd ed. (1945) of our *Cosmologia*.
10. See the quotations in "De origine primorum principiorum" in *Gregorianum*, XIV (1933), 153-84.
11. Perhaps the reader might object: this is not a syllogism in *Barbara*, for the minor seems to be singular, not universal. Nevertheless, it would be a syllogism in *Barbara*, and the minor should be called universal; for it is always and everywhere true: "this" syllogism can be repeated, it is a "*species specialissima*" and hence a universal object.

12. On this argument, see the whimsical article by Lewis Carroll, "What the Tortoise Said to Achilles," in the review *Mind*, IV (1895), 278-80. It is quoted in the fine book of H. W. Joseph, *An Introduction to Logic*, ed. 2 (Oxford, 1916 and 1925), p. 312; he refers to the place cited from Aristotle. It is found also in the small book of Hillebrand which we cited in Chapter II, *Die neuen Theorien der kategorischen Schlüsse* (Wien, 1891), p. 8.

13. *Summa theologiae*, I, q. 84, a. 6, c., and ad 3.

14. Cf. our study "De problemate exactitudinis geometricae" in *Gregorianum*, XX (1939), 321-50.

15. See the review *Bijdragen*, IV (1941), 73 sq.

NOTES TO CHAPTER VII

1. In a letter to Bierling. Gerhardt, *Die philosophischen Schriften Leibniz*, VII, 488.

2. The commentary on Aristotle's *De Anima* (III, lect. 9, nn. 724 sq.), is almost as complete. See also: *In De Anima*, II, lect. 6, n. 308; *Summa theologiae*, I, q. 14, a. 2, ad 3; q. 87, a. 1, c., and ad 3; a. 3, c., and ad 1; q. 89, a. 2; *Contra gentiles*, II, 98; III, 26, 46; *Quaestio Disputata De Anima*, a. 3, ad 4; *De malo*, q. 16, a. 8, ad 6; a. 12, ad 4; *De veritate*, q. 8, a. 6; q. 10, a. 8, c., and ad 5 in contr.; q. 10, a. 9, ad 1 in contr.; *In Sententias*, III, D. 23, q. 1, a. 2, ad 3; *In Boethium De Trinitate*, q. 1, a. 3.

3. *Translator's note*: The reason is that these objects are actually present themselves as intelligibles in the soul. Hence Kant is wrong in thinking that we only know the phenomenal ego.

4. Did St. Thomas at the beginning of his career hold a different position? In *In Sententias*, I, D. 1, q. 2, a. 1, ad 2, we are told: *eadem operatione intelligo intelligibile et intelligo me intelligere*; and a little farther on, in *In Sententias*, I, D. 10, q. 1, a. 5, ad 2, we read: *non alio actu potentia fertur in obiectum et in actum suum; eodem enim actu intelligit se et intelligit se intelligere*. The *se* seems strange in the context; we naturally expect *obiectum*. If one takes *se* literally, this opinion is not in contradiction to his later thesis. The two passages contain this opinion only incidentally.

A little further on the later thesis is proposed (*In Sent.*, I, D. 17, q. 1, a. 5, ad 4): *sicut diversi sunt actus quibus intellectus intelligit equum et hominem, ita actus diversi sunt in numero, quo intelligit equum et quo intelligit actum illius [illum?] sub ratione actus*. From the context one must conclude that the operation which knows the object and that which knows this *intelligere* are one only to this extent, that for the understanding of the object the *ratio* which leads to the understanding of this *intelligere*, namely the intelligibility or the *verum*, must be already present.

If this clarification of the preceding thesis is truly a change of opinion—something which we do not believe—then it would be the *unique* change which we have found in St. Thomas's whole theory of the judgment.

Another historical problem presents itself here. Was it the reading of Avicenna which led St. Thomas to this distinction of the *object* and the *ratio*, and thus to the determination (or correction) of his thesis? In the last passage

he quotes Avicenna. He does the same, in a very characteristic sense, in an analogous question, *In Sententias*, II, D. 17, q. 2, a. 1, ad 3. For that period (that is, between the beginning of the commentary on the *Sentences* and the 25th Distinction of Book I) Roland-Gosselin believes he has discovered the influence of the reading of Avicenna; namely, the introduction of the use of the term *signatus* (in the problem of the principle of individuation) instead of a prior term, *demonstratum*. The first term had been very frequent in the Latin translation of Avicenna. See Roland-Gosselin, in his edition of the *De ente et essentia*, pp. xxvi sq., 11, 58-60, 104 sqq.

5. Here again we note in passing that since we also know pure facts, or contingent facts, whose affirmation is true, the field of "truth" is larger than the field of what is "intelligible for us." But in this wider field we have to admit a double principle: *ens est verum*, and *verum est ens*. *Ens* and *verum* are convertibles, just as *ens* and *intelligibile in se* are convertible. We cannot here develop this remark any further. Consult, however, the penetrating observations of St. Thomas in *Summa theologiae*, I, q. 16, a. 3, ad 1; *De veritate*, q. 1, a. 2, ad 1.

6. The same doctrine is found in *In Physica*, I, lect. 1, n. 7, and frequently elsewhere.

7. J. Balmes, *Philosophie fondamentale*, Liège, 1852, T. 1, liv. 1, Ch. 22, nn. 221 sq., (p. 139).

8. This symbolic abstraction was not neglected in the Middle Ages. There is nothing astonishing in this, for even Aristotle made use of letters instead of specific terms, as we just saw. But the early philosophers did not describe, to my knowledge, the typical difference between logical principles admitting a symbolic abstraction, and the other principles which do not admit it. Moreover, they treated the question very summarily.

St. Albert the Great calls the letters he uses as symbols "*termini transcendentis*." These transcendent terms signify "everything" and "nothing": "everything," because while abstracting from the content, they suppose this content, that is to say, a *sense* (and, of course, even though he does not say so, the same sense for the same symbol, should it recur more than once in a context); they can take the place of every term that has a meaning. They also signify "nothing," precisely because they do not determine any content. Here are his words:

And since we are speaking of the simple syllogism, which is only formally a syllogism, and can be used with every matter, and is not proper to any matter, we use transcendent terms, signifying everything and nothing. Nothing, I say, because no determined matter. Everything, I say, because they are applicable to every matter. For example: a, b, c. (*Et quia de syllogismo loquimur simplici, qui tantum formaliter syllogismus est, et in omni materia habet poni, et nullius materiae est proprius, ideo terminis utimur transcendentibus, nihil et omnia significantibus. Nihil, dico, quia nullam determinatam materiam. Omnia vero, dico, significantibus; quia omnibus materiis sunt applicabiles, sicut, a, b, c.*)

This quotation is found in Albert's *In Analytica Priora*, I, tract. I, cap. 9 (in the edition of Jammy, Lugduni, 1651, I, 298, a.). Prantl, III, 106, n. 469, gives

a portion of the text. The Jammy edition refers to Averroes (*in hoc loco*) and to Boethius' *De syllogismo categorico* (Migne, PL 64: 810; Prantl, II, 699, n. 133), but this latter is not clear, and only emphasizes the independence of the form in respect to the content:

That which we want to demonstrate by letters we demonstrate universally. (*Id quod per litteras demonstrare volumus, universaliter demonstramus.*)

The author of the *Summa totius logicae* also makes use of the phrase *termini transcendentis*, opposing it to words which have a determined meaning, that is, *termini significativi*. (*Summa totius logicae*, tract. VII, cap. 2; ed. Mandonnet, pp. 102-4; and c. 6, p. 111; Prantl, III, 254, n. 332.)

9. On the meaning of the formula, see our study, "De indole metaphysica mechanicismi," in *Gregorianum*, X (1929), 210-37, especially 217 sq.

10. See our *Cosmologia* for the details: pp. 140-47, 173-83 (ed. 3, pp. 133-40, 164-74).

11. For the details see our *Cosmologia*, ed. 2, pp. 156-61, 169-88, 194-204 (ed. 3, pp. 149-54, 161-79, 185-95).

12. For the details see our *Cosmologia*, ed. 2, pp. 27-35 (ed. 3, pp. 26-38).

13. See our communication to the Second Thomistic Congress of Rome, *Acta*, 1937, pp. 367-74.

14. For further details see our *Cosmologia*, ed. 3, note IX, pp. 471-82.

NOTES TO CHAPTER VIII

1. The following is a list of places where St. Thomas speaks of the sense judgment: *Summa theologiae*, I, q. 17, a. 2; q. 78, a. 4, ad 2; q. 83, a. 1; *In De Anima*, II, lect. 13, and III, lect. 3, 6, 8, 12; *Quaestio Disputata De Anima*, a. 13; *De veritate*, q. 1, a. 9; a. 11; q. 24, a. 2, c., and ad 2, 3, 5, 7; *De potentia*, q. 3, a. 7; *In Sententias*, II, D. 1, q. 1, a. 4; *Quodlibetum*, 8, a. 3; 9, a. 5; *In Metaphysicam*, I, lect. 1, nn. 8, 11, 12, 30, and IV, lect. 14, nn. 692, 694, 702, 703.

2. The same doctrine is found at length in the *In Sententias*, IV, D. 49, q. 2, a. 2; and, more succinctly, in *In De Anima*, III, lect. 1, n. 580; *Summa theologiae*, I, q. 12, a. 3, ad 2; q. 17, a. 2.

3. Clearly, this should read, *quasi affirmans et negans*, for this was the reading above, and not the double *aut*; see also n. 772.

4. It goes without saying that this "discernment" is found also in the first function of the sense, it also serves for the *utilitas vitae*.

5. On this "discerning," see also *In De Anima*, II, lect. 13, n. 390, and III, lect. 12, nn. 774-76; *Quaestio Disputata De Anima*, a. 13; *In De Sensu et Sensato*, lect. 19.

NOTES TO CHAPTER IX

1. See *In De Anima*, III, lect. 11, n. 758; also, *In De Sensu et Sensato*, lect. 19, n. 294-96; the end probably refers to a *sensibile per accidens*; *In Posteriora Analytica*, I, lect. 42, n. 7.

2. We believe we have found a complete solution, even in detail, by a development of the theory of the judgment of St. Thomas. The first part was published in *Gregorianum*, XX (1939), 321-50: "De problemate exactitudinis geometricae"; the second, *ibid.*, XXIV (1943), 171-234. It will suffice here to call attention to one point. From the grasp of the necessity of the nexus (even in inexact data) we are not only in a position to affirm this nexus as real (for example, this inexact straight line, being extended, is divisible), but besides, by reason of the intelligibility of the nexus, we know the reality of the *object*, the extended, and hence of this "quiddity" (see Chap. VI, Sect. 5). Then, in the nature of the extended, which we now know intellectually, we see intellectually that the limits introduced by division are indivisibles. Thus the intellect transcends the senses, which imperfectly present an object to it. This is a new proof of the fact already known, that this process is purely intellectual. This is also a means of distinguishing neatly the concept from the phantasm.

NOTES TO CHAPTER X

1. The same doctrine is found in the *In Sententias*, I, D. 38, q. 1, a. 5, ad 3: *si ego videam Socratem praesentialiter currere, quod quidem in se est contingens, sed relate ad visum meum est necessarium*. This was called *necessarium necessitate consequentiae et non consequentis*.

Similarly in *Summa theologiae*, I, q. 14, a. 13: the contingent which is actually present is *determinatum ad unum*, and *propter hoc, sic infallibiliter subdi potest certae cognitioni, utpote sensui visus, sicut cum video Socratem sedere*. See also *In Perihermeneias*, I, lect. 14, n. 21. A stronger expression is found in *De potentia*, q. 3, a. 7, in a polemic with Arabian Occasionalists; it excludes the intervention of God (*tactus . . . non sentiret calorem ignis nec sentiret ignem esse calidum*). In *Sententias*, II, D. 1, q. 1, a. 4, *destruit iudicium sensus*, should undoubtedly be understood in the same way. In St. Thomas's later works this argument does not recur.

2. See also *De veritate*, q. 8, a. 12; *In Sententias*, II, D. 3, q. 3, a. 3, c., and ad 1; *Summa theologiae*, I, q. 14, a. 11.

3. See, for example: *Summa theologiae*, I, q. 78, a. 3, ad 2; a. 4, ad 2; q. 79, a. 3; q. 81, a. 3, ad 3; q. 85, a. 2, ad 3; *In De Anima*, II, lect. 10, nn. 351, 357; lect. 12, n. 382; lect. 13, nn. 393 sq.; lect. 24, nn. 551-56; *In De Anima*, III, lect. 3, n. 600; lect. 6, n. 658; *De veritate*, q. 1, a. 11; *Quodlibetum*, 5, a. 9, and so on.

4. *Ibid.*, see also lect. 3, nn. 340-47, where we are told that the imagination does not only know the sensible, but also the perception; if this latter is known as a former perception, then it is memory. Cf. also *Summa theologiae*, I, q. 78, a. 4, ad 3.

5. This is the thesis of Aristotle (*Metaphysics*, IX, 1051a 32): *διὰ τοῦτο ποιοῦντες γινώσκουσιν*. In translation: *propter hoc facientes cognoscunt* ("and therefore it is by making constructions that people come to know them"—

Ross). Aristotle also twice has the *videnti manifestum* (1051a 26, 28: ἰδόντι δῆλον) which brings out the intuitive character of the operation. On this passage see W. D. Ross, *Aristotle's Metaphysics*, II, 268–73. Ross calls attention to the similarity with Kant in the emphasis on intuition, but not to the great difference in the explanation of this, which in Aristotle is attributed to abstraction.

6. Between the cases where the phantasm alone is sufficient and others which demand the aid of the external senses, that is, actual perception, there are intermediary cases. See our study, "De problemate necessitatis geometricae," in *Gregorianum*, XX (1939), 19–54.

7. See, for example, *In Ethica Nicomachea*, VI, lect. 3, nn. 1150 sq.; *In Metaphysicam*, IX, lect. 2, nn. 1788, and so on.

8. A deeper analysis reveals to us that we were guided by two other elementary intuitions; we can formulate them as follows: (1) a multitude added to another multitude generates a (larger) multitude; (2)—an even more elementary intuition—a multitude can be added to another multitude, that is, such an operation has a *meaning* when there is question of multitudes, it is one of their properties. These two truths are in the mind during the counting, but only as virtual judgments. They are never formulated in advance. We even believe we have been the first to enunciate them. See *Gregorianum*, XX (1939), 30 sq., and 43–46.

9. In the famous polemic of Poincaré with the logisticians of his time, Couturat and B. Russell, the great mathematician brought out this point; and his position in this is very strong. He demanded of logical rules, and, of course, with perfect right, "Either you will be infallible, or you simply will not be at all" (*Vous serez infaillibles ou vous ne serez pas*). And then he called attention to the fact we have just seen, that some rules of the logisticians lead to false conclusions; and in answer to the excuse that even in mathematics we make mistakes, he said (*Science et méthode*, p. 194):

"Nor should you say, does the infallibility of arithmetic prevent errors of addition? The rules of calculation are infallible and yet we see those making a mistake who do not apply the rules; but in checking their calculations, they will see immediately just where they went wrong. Here we have a different case; the logisticians applied their rules and fell into contradiction; and this is so true that they want to change the rules and abandon the notion of 'class.' Why change them if they are infallible?" (Ne dites pas non plus: est-ce que l'infaillibilité de l'arithmétique empêche les erreurs d'addition? Les règles du calcul sont infaillibles, et pourtant on voit se tromper ceux qui n'appliquent pas ces règles; mais en revisant leur calcul, on verra tout de suite à quel moment ils s'en sont écartés. Ici ce n'est pas cela du tout; les logisticiens ont appliqué leurs règles, et ils sont tombés dans la contradiction; et cela est si vrai qu'ils s'apprentent à changer ces règles et à sacrifier la notion de classe. Pourquoi les changer si elles étaient infaillibles?)

We must be careful; for what Poincaré here calls *rules* are what we have called *principles*. They are not the rules of operation, the method of manipulating symbols; for these latter lead with necessity to their result, and, if they are applied exactly, with infallibility. That is why they lead infallibly to the

same erroneous result if the starting point is erroneous. The remark of Poincaré confirms also what we have said above concerning errors of arithmetical calculation.

10. See our *Cosmologia*, ed. 2, pp. 188-92 and 468-78 (ed. 3, pp. 179-83 and 488-97). See the examples given by St. Thomas in *In Metaphysicam*, IV, lect. 14, n. 695; *In Sententias*, II, D. 13, q. 1, a. 3, ad 2.

11. Mathematics is called "speculative" *par excellence* in *In Metaphysicam*, I, lect. 1, n. 33: *artes mathematicae, quae sunt maxime speculativae*.

12. On this theory and the numerous problems solved by it, see: *Summa theologica*, I, q. 14, aa. 5, 8, 9, 11, 14, and 16; q. 15, aa. 1, 2, 3; q. 22, a. 2; q. 57, a. 2; q. 89, a. 7; *Contra gentiles*, I, 49, 50, 60-71; II, 100; *In Sententias*, I, D. 36, q. 1, a. 1; q. 2, a. 1; D. 38, q. 1, a. 1; a. 3, ad 1; a. 4; D. 39, q. 2, a. 1; and IV, D. 50, q. 2, a. 3; a. 4; *De veritate*, q. 2, aa. 4, 5, 7, 8; q. 3, a. 3; q. 8, a. 11; *Quaestio Disputata De Anima*, a. 20.

13. What we have found in the process described in this chapter is the essence or nature of the perceptive faculties. St. Thomas well knew that one can make a mistake in the use of a faculty which by nature is infallible, just as the intellect, in itself infallible, can make a mistake even in so simple a matter as addition. He knew the "errors of sense" but, in his theory of cognition, he does not give them an exaggerated importance. An illusion is precisely an illusion, and it makes us go wrong because it is an imitation of an operation which is by its nature true and infallible; this appearance supposes a reality. And St. Thomas has here a criterion which allows him, in reviewing our experience, to distinguish reality from its appearances. This criterion is precisely the last element of the theory, the *facientes cognoscunt*. This can be a confirmation of our results.

St. Thomas says, with Aristotle (*In Metaphysicam*, IV, lect. 14, n. 698), that if a man, while dreaming in Libya, imagines he is in Athens, he does not on arising from sleep go to the Odeon. During his sleep a visual illusion places him in Athens; on awaking he recognizes his presence elsewhere. If he were in Athens, he could go to the Odeon. In Libya he cannot; this *action* is there impossible. By this criterion the case of error is distinguished from the real case; only reality permits the execution of an action. This is an application of the *facientes cognoscunt*.

St. Thomas is also familiar with the hallucinations of the waking state. In *In Sententias*, III, D. 21, q. 2, a. 4, sol. 2, we read:

By reason of the vividness of the imagination it sometimes happens that what the imagination apprehends seems to be present in sight, and this not only while in sleep, but also in waking. (*Propter vehementiam imaginationis contingit aliquando quod illud quod imaginatio apprehendit, videtur esse praesens in visu, non solum in dormiendo, sed etiam in vigilando.*)

Then to resolve the doubt whether it is or is not a visual illusion, he applies a criterion which supposes the *facientes cognoscunt*. Because this adage was discovered by human action, this *facere* is primarily an operation with the aid of the hands, and directed by the sense of touch. Tactile sensations are nearest to the operation which reveals to us the value of perception. That is why this perception is the surest in achieving actuality. It is true that the sense of sight

is "more spiritual" (*Ibid.*, sol. 1, and *In Metaphysicam*, I, lect. 1, nn. 5-8) and, in consequence, is more important for man's knowledge. We could say: it leads more surely to the understanding of the nature of things. But touch is better for the perception of actuality. St. Thomas is not the only one of this opinion. We believe that it is the universal opinion. Here is his solution to the doubt (*loc. cit.*):

And therefore, in order to show the truth of His resurrection, the Lord conjoined touch to sight, to exclude the possibility that sight was caused by some influence of the imagination. (*Et ideo Dominus ad ostendendam veritatem resurrectionis palpationem visui adiunxit, ut excluderetur visio per imutationem visus ab imaginatione.*)

Thus again *facere* is made use of, and the *facientes cognoscunt* is the real noetic reason for the preference of touch.

Perhaps we should attribute the characteristic thesis of strict mechanism to the same fundamental idea of *facientes cognoscunt*. This system maintains that there is only one type of efficient causality in nature, namely the collision of bodies. During the development of the philosophies which finally denied the reality of the extended, the less intelligible data were first sacrificed, namely the so-called secondary qualities; it was only later, after a long fight, and by reason of antinomies arising from other sciences, that philosophers denied the existence of the extended which is so intelligible to the human mind. We have spoken of this in this book (Chap. VII, Sect. 7). Something similar is true in regard to causality; in mechanism, the causality of bodies has been successively eliminated. The most tenacious, the one which was maintained the longest, and finally as the only one, was the activity in the collision of bodies, the *vis a tergo*. But this is the unique activity which man can himself exercise directly on bodies, and it is the activity which leads to the knowledge of the *facientes cognoscunt*, and the one which seems to have the greatest intelligibility.

NOTES TO CHAPTER XI

1. For internal perception see Chapter XII.
2. See also *ibid.*, ad 4; *Summa theologiae*, I, q. 14, a. 13; *Contra gentiles*, I, 67.
3. See: *In Posteriora Analytica*, I, lect. 25; lect. 41, n. 3; *In Metaphysicam*, III, lect. 7, n. 422; XI, lect. 1, n. 2162; *In Physica*, II, lect. 3; *In De Caelo*, I, lect. 3, n. 6.
4. See our *Cosmologia*, pp. 185-204, 468-78 (ed. 3, pp. 176-95, 488-97).
5. See our *Cosmologia*, pp. 176-78, 458-68 (ed. 3, pp. 168 sq., 464-82).
6. *Translator's note*: An acceleration is a continuous process which fulfils exactly the definition which Aristotle gives to motion (*Physics*, III, c. 1, 201 a 10): "The fulfilment of what exists potentially insofar as it exists potentially is motion." Hence, it demands the continuous activity of an actuator or cause.

7. In antiquity Ptolemy tried to find a law of refraction, but was unable to find the true one. See T. Heath, *A History of Greek Mathematics*, II (1921), p. 294.

8. See our *Cosmologia*, pp. 367-88 (ed. 3, pp. 360-66, 369-93).

9. In regard to the judgments of causality we met above we can add the following: the universal principle of causality is acquired by an intellectual intuition, as we have more than once seen in this book. A contingent nexus requires a cause, but the knowledge of this contingency does not tell us what is the cause, nor how the causality is exercised. It is the task of experimental science to find this. The judgments of causality of experimental science are, therefore, specifications of the universal principle of causality. These judgments are the result of the co-operation of intellectual intuition and experimental knowledge. This clearly implies noetic problems. Let us note one conclusion: an indetermination in the specification which depends on the experimental knowledge certainly does not imply an indetermination in universal causality known by intellectual intuition. There is no need to insist on the point. This simple truth has its application in the solution of the problems which arise from the "indetermination" found in the physical theory of "quanta." (See above, Chap. VII, Sect. 7).

NOTES TO CHAPTER XII

1. St. Thomas's words are as follows (lect. 11, n. 1908):

In the fact that we sense ourselves sensing and understand ourselves understanding, we sense and understand ourselves existing. (*in hoc autem quod sentimus nos sentire et intelligimus intelligere, sentimus et intelligimus nos esse.*)

2. The preposition *ex* is found in *Summa theologiae*, I, q. 78, a. 1: "Socrates vel Plato percipit se habere animam ex hoc quod percipit se intelligere." The *ex* means that the knowledge of the operation precedes (at least in nature); and yet, even then, the knowledge of the existence of the soul is always a *percipere*.

3. See also: *Summa theologiae*, I, q. 56, a. 1, ad 2; q. 57, a. 2, ad 1; *In Sententias*, II, D. 17, q. 2, a. 1, ad 3; *De spiritualibus creaturis*, a. 9, ad 15; *Quaestio Disputata De Anima*, a. 2, ad 5, and a. 3, ad 17.

4. See, for example: *Summa theologiae*, I, q. 75, a. 2; a. 3; q. 89, a. 1; *Contra gentiles*, II, 50; II, 79; III, 69; *In De Anima*, II, lect. 5, n. 281; *Quaestio Disputata De Anima*, a. 1 and a. 14; *De potentia*, q. 3, a. 9 and a. 11.

5. "Le 'cogito ergo sum' comme intuition et comme mouvement de la pensée," in *Cartesio nel terzo centenario del "Discorso del Metodo"* (commemorative issue of the *Rivista di Filosofia Neo-scolastica*), Milano, 1937, pp. 457-71.

6. Above we have seen examples of his insistence on this necessity. We meet it again in the second *Méditation* (A. & T., VII, 25, 13, 2 and 15; 27, 13; 33, 11-14).

NOTES TO APPENDIX

1. *De veritate*, q. 1, a. 9.
2. Cf. Cardinal Mercier, *Critériologie générale*, 8^e éd. 1923, pp. 40 and 267. Sertillanges, *St. Thomas*, t. 2, p. 184.—G. Picard, *Archives de philosophie*, t. 1, cahier 2, p. 69.—P. Jeannière, S.J., puts this text at the beginning of his *Criteriologia*, Beauchesne, 1912. Professor Giuseppe Zamboni transcribes it as the conclusion of his recent work, *La gnoseologia dell' atto*, soc. ed. "*Vita e Pensiero*," Milano, p. 119.
3. *Critériologie générale*, 8^e éd., 1923, p. 267, and also pp. 40–41. Sertillanges understands in like manner the complete return of which the text speaks: cf. *St. Thomas* t. 2, pp. 184–85. Others in passing adopt the same interpretation, but without drawing from it a criteriology; for example, Remer, *Logica*, 2^a ed., 1900, n. 50.
4. *Summa theologiae*, I, q. 16, a. 2.
5. VI, lect. 4, ed. Cathala, Turin, 1915, nn. 1235–1236.
6. In *Commentaria in Summam Contra Gentiles* Francisci de Sylvestris Ferrariensis, I, 59, XI and XII.
7. *Loc. cit.*, n. 1236.
8. *Summa theologiae*, I, q. 16, a. 2.
9. *Contra gentiles*, I, c. 59.
10. This point is well brought out by Roland-Gosselin, "Note sur la théorie thomiste de la vérité," *Revue des sciences philosophiques et théologiques*, 1921, pp. 229–31; also by Zamboni, *La gnoseologia dell' atto* . . . , pp. 118 sqq.
11. *Summa theologiae*, I, q. 87, a. 3, ad 2. Cf. in the same sense *Contra gentiles*, III, 26, the second *Praeterea*; *Summa theologiae*, I, q. 76, a. 2, ad 4.
12. Cf. *Summa theologiae*, I, q. 55, a. 2.
13. This doctrine is often expounded by St. Thomas. Cf. especially *Summa theologiae*, I, q. 14, a. 2; q. 56, a. 1; q. 87, a. 1 and 3.
14. *Translator's note*: The intellect by its first act apprehends the object; the object is not a perfection of the intellect and hence the intellect is not known by this act. *The act*, however, which is an act of knowing this specific object, is a *perfection of the intellect* and is the proper activity of the intellect; therefore, by making this first act (that is, the object as being known) the object of a second or reflex act, the intellect now knows its act of knowing this intelligible object and this act is a perfection of the intellect; hence the soul now knows itself as a knower, having a faculty actuated here and now by an act specified by a determined object. It is therefore knowing truth because it knows itself as conformed to its object known.
15. The evidence of abstract principles supposes evidence of another kind, the evidence of the nature of an act of apprehension. This evidence is completely sufficient and can never be called into question. Would not Gabriel Picard, who seems to think otherwise (*Archives de philosophie*, t. 1, cahier 2,

especially pp. 19 sqq., 28 sqq.), find a solution to his difficulties in our interpretation?

16. *Translator's note*: I know an intelligible object abstracted from sense data. By reflection I know this specific object as being known here and now; hence I know my act of knowing and, in turn, my capacity for such acts of understanding; I know myself as a substantial knower, having that faculty of knowing an object. Or, in other words, I know myself as a substantial knower capable of knowing a determined knowable object abstracted from sense data in accordance with the principles: *actus cognoscuntur ex obiectis*; *potentiae cognoscuntur ex actibus*; *essentia ex potentiis*; or from the more universal valid principle *potentia cognoscitur ex actu*.

17. *Translator's note*: To know that you know is to know that this object is understood or to know that this specific object is now an existing intelligible, for "*intellectus in actu est intelligibile in actu*," to be understanding actually is identified with an actually being understood object.

18. Ex hoc enim quod anima universales rerum naturas cognoscit, percipit quod species qua intelligimus est immaterialis; alias esset individuata, et sic non duceret in cognitionem universalis. Ex hoc autem quod species intelligibilis est immaterialis intellexerunt quod intellectus est res quaedam independens a materia; et ex hoc ad alias proprietates intellectivae potentiae cognoscendas processerunt. (*De ver.*, q. 10, a. 8, c.)

19. Quantum igitur ad actuale cognitionem, qua aliquis considerat se in actu animam habere, sic dico quod anima cognoscitur per actus suos. In hoc enim aliquis percipit se animam habere et vivere et esse, quod percipit se sentire et intelligere. . . . Nullus autem percipit se intelligere nisi ex hoc quod aliud intelligit: quia prius est intelligere aliquid quam intelligere se intelligere. (*Ibid. supra*: "*ad cuius evidentiam. . .*")

20. Cf. *In Sententias*, III, D. 23, q. 1, a. 2, c.; *In De Anima*, III, lect. 9; *De veritate*, q. 10, a. 8; a. 9, ad 1; *Summa theologia*, I, q. 14, a. 2, ad 3, and so on.

21. *Translator's note*: The reason is that the act is the perfection or actuality of the faculty and to know a perfection is to know the thing having that perfection; for the intellect is nothing but the capacity for performing *such* acts. In knowing its act of knowing a thing, the intellect knows itself as a *faculty of knowing* a thing.

22. *Translator's note*: I would say that the first direct simple apprehension makes us know the object, the reflection (a second act) on the object as actualized in the cognitive act gives us the judgment on the "*esse*" of the object and all the above-listed cognitions.

23. Cognoscere conformitatem in actu signato est cognitionem terminari ad relationem conformitatis. Cognoscere vero conformitatem in actu exercito est cognoscere aliquid in se ut conforme cognito. . . . Cognoscere igitur conformitatem sui ad rem, nihil aliud est quam apprehendere complexum aliquid: apprehendendo enim *ly homo est*, apprehendo aliquid ut conforme. (Cajetan, *In Summam theologicam*, I, q. 16, a. 2.)

24. *Summa theologia*, I, q. 85, a. 4.

25. *Summa theologia*, I, q. 12, a. 10; cf. q. 86, a. 2.

26. Cf. *In De Anima*, III, lect. 9.

27. Non oportet ut id quo cognoscitur, alia cognitione cognoscatur quam id quod cognoscitur eo. (*De ver.*, q. 10, a. 8, ad 9.)

28. Eadem operatione intelligo intelligibile et intelligo me intelligere. (*In Sententias*, I, D. 1, q. 2, a. 1, ad 2.) Non alio actu potentia fertur in obiectum et in actum suum, eodem enim actu intellectus intelligit se et intelligit se intelligere (*In Sententias*, I, D. 10, q. 1, a. 5, ad 2m). Cf. *In Sententias*, III, D. 14, q. 1, a. 1; q. 4, sol. Hence, it is only in appearance that these texts, which we could multiply, seem to contradict other texts, cited above. If they are understood each in its place in the doctrine, they all harmonize of themselves.

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